NOVEMBER 1920 — No 178

Monthly

A Reference for Buyers

HITCHCOCK'S MACHINE TOOL LIST

Distributed Free to Machine Tool Users Everywhere in the United States and to Dealers in American Machinery Abroad

Published by
A·H·HITCHCOCK
1220-1235 Caxton Building
Chicago



At Full Speed—Unhampered by Strain or Vibration—a Type T Motor Drives this Great Fan

Are you risking delays—idle machinery and idle men? Full production demands continuous operation at maximum capacity. Machines and men and power—one is as essential as another.

Power—dependable machine power—is a prime essential. At the source of power—the power plant—back in the boiler room a Type T Motor drives a mammoth fan, week after week, full speed, unhampered by strain or vibration—unaffected by ashes, dust, heat or moisture. This motor is a unit of dependable power, cooperating with other Type T Motors in keeping machines and men producing at highest efficiency.

Ability to operate continually under heavy loads at high speeds manifests the value of more and better materials in vital parts, a commutator eight times improved and field coils protected for hard service. Independence from power troubles is the tangible result of years of motor experience of 35 Electrical Engineers who helped design Type T Motors.

Dependable machine power is the forerunner of manufacturing at lower costs. Buy Type T Motor endurance. It is economy. Get Bulletin 2014.

We specialize in motors, sizes 1/2 to 150 h. p., constant and adjustable speed D. C., squirrel cage and slip ring A. C.

Branches:

BOSTON
NEW YORK
PHILADELPHIA
PITTSBURGH
DETROIT
CHICAGO

Reliance Electric & Engineering Co.
1050 Ivanhoe Road, Cleveland, Ohio

Type T Heavy Duty
RELIANCE MOTORS
Direct Current



More life to your AUTOMATICS

The NAMCO Bar Pointer

A convenient, portable machine which can be connected to any electric circuit. It points bar stock for the screw machines—evenly, rapidly and without the damaging emery dust to tools and machine bearings.

Want complete description?

THE NATIONAL ACME COMPANY
CLEVELAND, OHIO

New England Plant, Windsor, Vt.

Canadian Screw Plant, Montreal, P. Q.

Branch Offices:

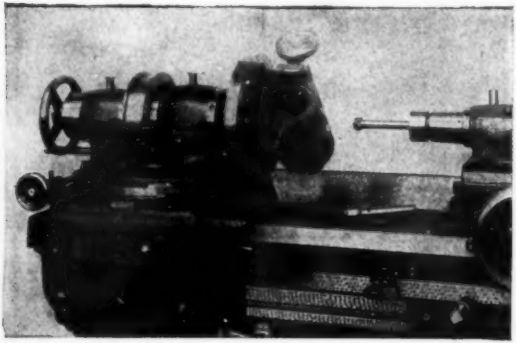
NEW YORK BOSTON CHICAGO DETROIT BUFFALO

WAREHOUSES: NEW YORK AND CHICAGO

REPRESENTATIVES IN PRINCIPAL FOREIGN COUNTRIES

Makers of Gridley Single and Multiple-Spindle Automatics at Windsor, Vermont; and Acme Automatics, Threading Dies, Collapsing Taps and Screw Machine Products at Cleveland, Ohio

Grinding Wrist Pin Bushings on a HEALD



A special fixture is used into which this piston is dropped, cover closed, holding it by end pressure to prevent distortion. The bushings are 1-in. long, 1-in. diameter bronze, and grinding time per pair is three minutes—practically no limit.

Let us send you complete information

The Heald Machine Co.

6 New Bond St., Worcester, Mass.

Branches at New York, Detroit, Chicago, Philadelphia, Cincinnati and Cleveland

Remember When Ordering Cutters

THAT this trade mark



signifies all that is best in Quality, Accuracy, and Workmanship.

Furthermore that we can supply Cutters to fulfill every practical requirement.

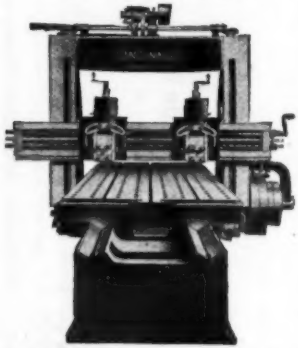
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Brown & Sharpe Mfg. Co.
Providence, R. I.



Cincinnati Planers and Boring Mills

22 In. to 10 Ft.



More Work Turnover

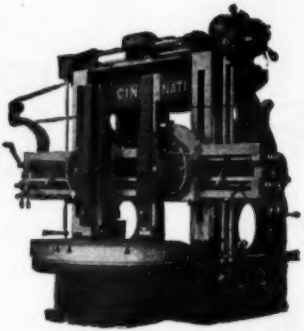
Results from Cincinnati Planers having Rapid Power Traverse, Forced Lubrication, Herringbone Gears, Box Table, Box Arch.

Less Labor Turnover

Cincinnati Boring Mills have an individual knack of pleasing the operator. Rapid Power Traverse, Selective Speeds and Feeds quicken production in the usual Cincinnati way.

Cincinnatis have them.
Have you Cincinnatis?

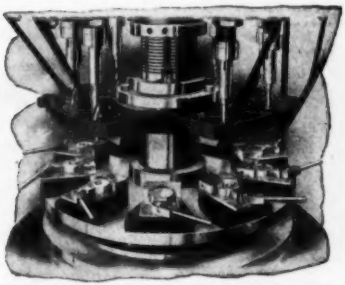
42 In. to 12 Ft.



THE CINCINNATI PLANER CO., - CINCINNATI, OHIO, U. S. A.

Never Allowed to Stand Idle

The Wide Range and Great Convenience of the Cincinnati-Gridley Automatic Multiple Spindle Drill Keeps It Busy All the Time



Cut Shows Machine Tooled for Drilling Dies

Mr. Manufacturer:—

This is pre-eminently a manufacturing machine—not a single purpose machine to be set up for one job, and allowed to loaf when that job is finished.

It is built for rapid drilling, reaming, counterboring and facing; is well adapted for the manufacture of parts for automobiles, adding machines, cash registers, all kinds of electrical work, or any work with a multiple number of operations.

Spindles are independently geared, so that various tools have independent cutting speeds. The three-way adjustment of the spindles—radially, up and down, and angular—is also an invaluable feature.

Even unskilled operators will produce more work with this modern machine. Write us about your needs

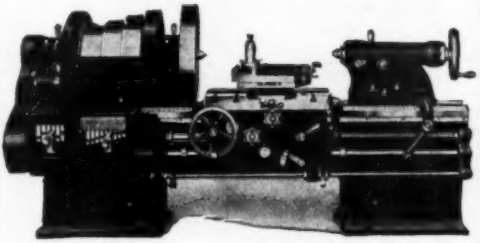
Cincinnati Automatic Machine Co.

Cincinnati, Ohio, U. S. A.

Manufacturers of Multiple Spindle Automatic Screw Machines and Multiple Spindle Automatic Drills.

Maximum Lathe Betterment

G-K Engine Lathes



20', 24', and 30' Heavy Quick Change Type
Three Step Cone and Friction Double Back Gear

The pressing need for improved and increased production today demands as a necessary means to this end the latest and most efficient equipment. It is here the G-K BETTERMENT Lathes demonstrate their mechanical and productive superiority.

Double plate box apron has removable front plate and friction steel gears. Unusually rugged bed heavily reinforced under "Vs". Massive carriage with ample "V" bearing. Special carbon hammered crucible steel spindle. Rigid and deeply webbed headstock. Latest patented quick change gear box. Complete outfit of all modern attachments and adjustments.

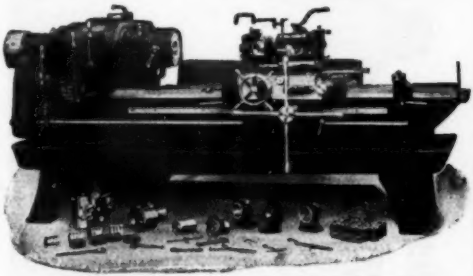
Our Booklet "G-K Betterments" tells the full story. Write for it.

The Greaves-Klusman Tool Co.

Cincinnati, Ohio, U. S. A.

The Cincinnati-Acme Makes Low Cost Records

Machining Detail Parts in Quantities



3¼x36" Bar Capacity. 16" Chucking Capacity.

BESIDES DOING good, dependable work, this modern Flat Turret Lathe enables you to get out big quantities in double quick time. Users have written us again and again that they consider the Cincinnati Acme ***"the best machine made for the purpose."***

There isn't room here to tell the whole story, but please note that it is the most rigid flat turret lathe made, built to withstand all sudden, heavy strains; and that the simple construction, with centralized control, makes it exceptionally easy to handle.

We offer a complete line of turret machinery.

If you are at all interested in lower shop costs, let's hear from you—no obligation incurred

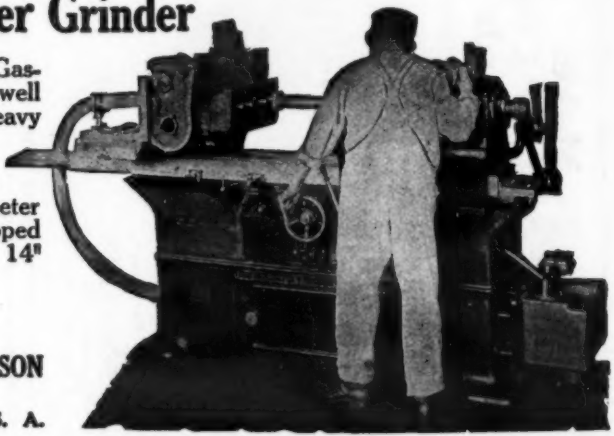
The Acme Machine Tool Co.

Cincinnati, Ohio, U. S. A.

Whitney Cylinder Grinder

For grinding all kinds of Gasoline Engine Cylinders as well as work too large or too heavy to revolve.

Machines furnished to grind holes from 3" up to 7" diameter and 14" deep. Also equipped to grind holes as large as 14" diameter and 20" deep.



Write for new catalog

BAXTER D. WHITNEY & SON
Incorporated
WINCHENDON, MASS., U. S. A.

Greenfield



Plain Grinder

A Small Grinder for Big Results on Small Work

It has the simplest, most durable and efficient mechanism ever devised for imparting the reciprocating motion to a grinding machine table, insuring *two to three times as rapid cuts* as you can get on large, expensive machines. And we have brought the price within the reach of every shop, by eliminating all unnecessary weight and making it extremely simple.

In a word, the "Greenfield" is a machine of both small initial cost and low operating costs, for the easy, quick and accurate grinding of cylindrical parts up to 2½" diameter.

A Grinder you should know about. Shall we tell you?

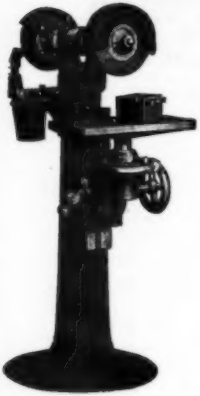
Greenfield Machine Company

Greenfield, Mass, U. S. A.

Also Manufacturers of the Greenfield Universal Grinder

La Salle Grinders

TIME-SAVING TOOLS FOR both PRECISION AND PRODUCTION



No. 1 Plain and Surface Grinder

(Micrometer Adjustment)

Grinding wheels	8"x1"
Between wheels	15"
Height to spindle center	40"
Table surface	8"x14"

Has vertical travel of 12" on guides, ¾" by micrometer, and may be raised to within 2" of spindle center. Wheel grinds to center of a surface 9" wide.

Spindle speed	3,000 r.p.m.
Countershaft speed	1,000 r.p.m.
Floor space	18"x24"
Net weight	300 lbs.

This No. 1 Plain and Surface Grinder was designed for general use in both tool room and machine shop. It combines the cream of our experience with the most modern ideas in grinder construction.

The micrometer adjustment on the horizontal hand-wheel has graduations marked in 1000ths of an inch. These graduations are 5-32 of an inch apart, thus allowing a very fine adjustment of the table for depth of cut. The knee is brought to any required position by means of the vertical hand-wheel which turns a pinion in the rack, and is clamped solidly in place by the hand-nut at the left. The table is carried by a stiff post which moves vertically in the knee and is kept from turning horizontally by a feather.

Better have complete specifications of our Plain and Surface Grinders and Automatic Surface Grinders. See next page for Drill Grinders

La Salle Tool Company

La Salle, Illinois, U. S. A.

La Salle Grinders

Excel in Design and Workmanship



La Salle No. 3
Large and Rigid

Grinding wheels	12"x1"
Between wheels	25"
Table working surface	7"x24"
Longitudinal movement	24"
Traverse movement	8"
Vertical travel	10"
Height to spindle center	42"
Spindle speed	1400 r. p. m.
C. S. speed	700 r. p. m.
Floor space	63"x46"
Weight, without c. s.	800 lbs.
Weight countershaft	50 lbs.

A PLAIN AND SURFACE GRINDER that is a top-notcher in every particular. You will find it thoroughly dependable and satisfactory in every detail, as output and quality of work will testify. Built for general shop and tool room use.

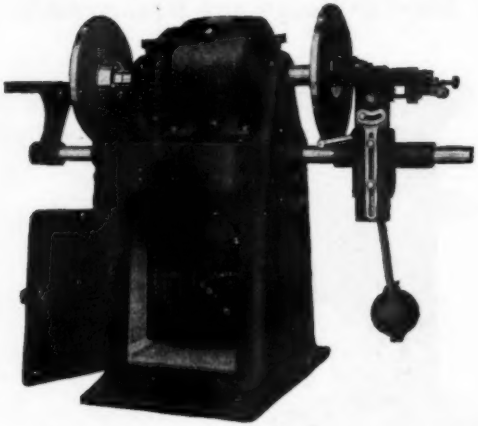
The spindle is of steel, ground, and runs in bronze bearings. Perfect lubrication is assured by large oil reservoir and felt oilers for each bearing. A vertical screw feed dial is graduated in thousandths, with provision for smaller subdivisions. The longitudinal movement, operated by spiral gear and rack, is perfectly smooth. All bearing surfaces are well protected. Has both plain and surface grinding wheels, or surface only. Can be arranged for wet grinding.

All La Salle Grinders are good investments

La Salle Tool Company

La Salle, Illinois, U. S. A.

Antigo Disc Grinder No. 4



A thoroughly modern grinder. High grade steel spindle runs in babbitted bearings—lubricated by compression grease cups. Steel discs turned to within .002 of parallel. Hardened steel end thrust collars.

Style 1-"L"—as above. Style 2-"L" has two lever feed tables. Plain style has two plain tables. The lever feed tables are adjustable to any angle up to 45 degrees to disc, tilting either way. Has 4¼" vertical adjustment. Has two T-slots and adjustable stop graduated in 1000ths.

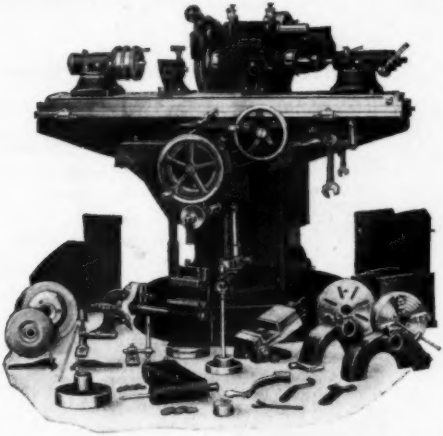
Also belt driven Disc Grinders for 14" to 30" wheels.

It will pay you to investigate these quality Antigo Disc Grinders

Murray-Mylrea Machine Co.
Antigo, Wisconsin

"Handles ANYTHING in the Grinding Line"

Thompson 10"x36" Universal



The NEW IDEA embodied in the "Thompson" is that of combining in a single machine the capacity for performing ***every*** possible grinding operation required in a machine shop. This principle has been insured by maintaining the grinding wheel in a fixed position right along, whilst the grinding table carrying the work is adjustable to ***any*** desired position relative to the wheel.

As required, therefore, the machine can, in turn, be converted into a (1) plain, (2) surface, (3) edge, (4) die, (5) cutter, and (6) internal grinder. For speed, simplicity of operation, precision and quantity of output, high standard of mechanical skill, and its capacity for handling ALL kinds of grinding, it is absolutely unequalled.

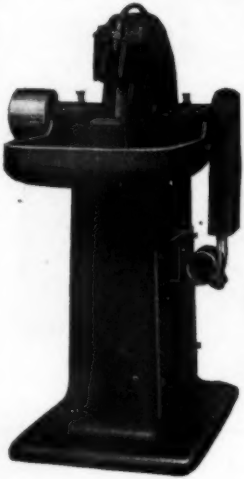
Send for the specifications and look them over

The Thompson Grinder Co.

Springfield, Ohio

One of the "Ransom Line"

Water Tool Grinding Machine



Belt Driven

Wheel, 20"x1½"

Furnished with 20"x3" wheel if preferred.

Bearings, 6"x1 9/16"

Base, 20"x33"

Arbor Pulley 6"x4¼"

Weight 950 lbs.

Tight and loose pulley 6"x4¼" on counter-shaft.

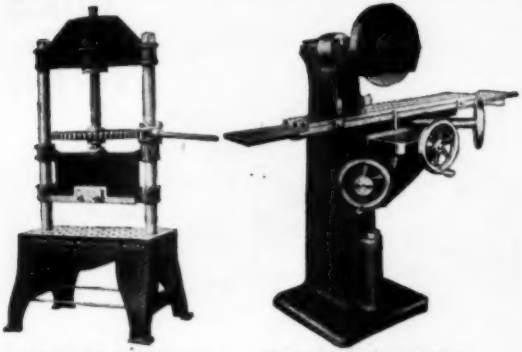
The water is applied without pressure at point of grinding and the rest is so designed that it prevents spattering of the water over the floor and operator. The large water tank inside the frame contains the water blower and settling pan. It is easily removed for cleaning and holds enough water to last several weeks. ***These are unique and exclusive features.*** Motor drive if desired. Dressing attachment extra.

Glad to send you full specifications

Ransom Manufacturing Co.

Oshkosh, Wisconsin, U. S. A.

Two Unusual Machines



Type B Screw Press **Manhattan Surface Grinder**

The "Manhattan" Press costs a tenth of the price of a punch press. For quick and accurate aligning of punches and dies it puts it all over the punch press. It affords perfect alignment. It allows a complete view of punch and die from all sides. Avoids holding up punch presses for this work, and cuts out the extra labor costs required to operate them.

The "MANHATTAN" *is a one-man machine.* Combines maximum efficiency with economy.

It is compact, massive and rigid. Has oversize phosphor bronze bearings. Even under the heaviest work there is no chatter. Fractions of 1000's of an inch may be obtained on both feeds. Shape of body casting affords maximum clearance. Its special features and improvements greatly increase its accuracy and productivity.

High grade machinery steel spindle runs in large dust-proof, wick-oiled bearings.

IT IS NOISELESS

Let us send you full particulars about these quality machines

Manhattan Machine & Tool Works

Dept. A, Grand Rapids, Mich.



DUMORE No. 1 GRINDER

THE Wood Turret Machine Company of Brazil, Indiana, uses the **DUMORE** High Speed Grinder in many ways which readily show its real merit — in grinding the head of the Wood Turret Lathes for example, and in finishing spindle ends, etc.—the high speed of the **DUMORE** giving a result much superior to that obtained from slow speed grinders.

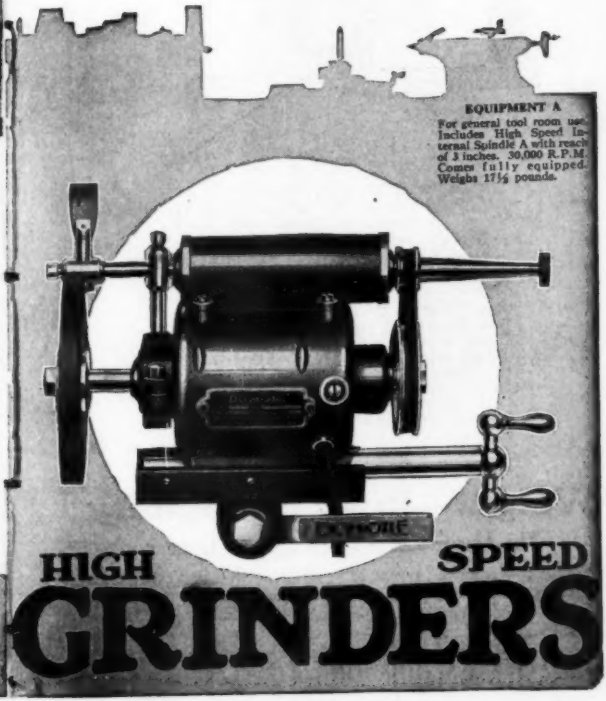
Here is a tool in which perfect running balance is combined with correct cutting speed. With a **DUMORE** in the shop there is no costly tearing down of jobs — no wasteful delay. It is set up easily and quickly wherever it is needed. The **DUMORE** can solve your grinding problems. It is the only tool on which you may surely rely for speed and accuracy.

Your dealer sells **DUMORE** Grinders
Ask him for a demonstration.

WISCONSIN ELECTRIC COMPANY
4329 Sixteenth Street **RACINE, WISCONSIN**

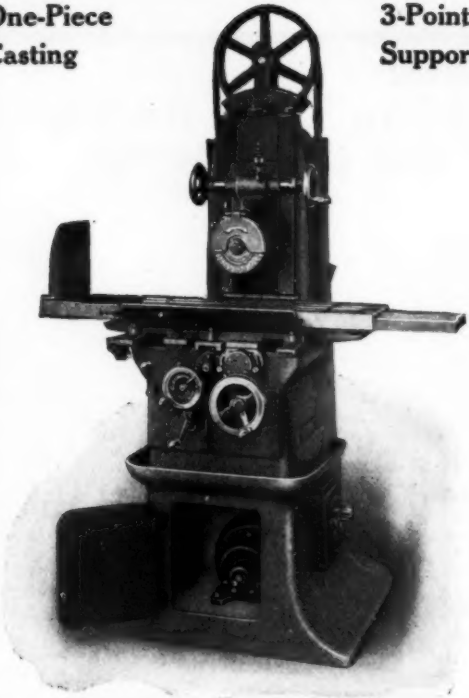
DUMORE

Machine Tool Builders Use the DUMORE



One-Piece Casting

3-Point Support



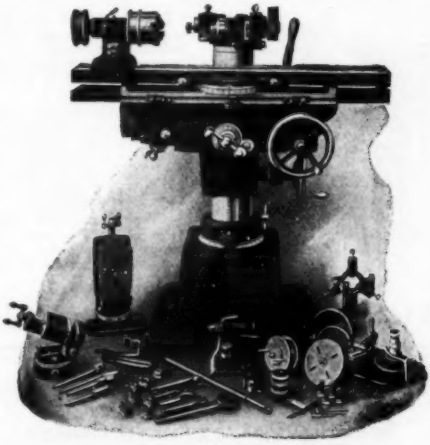
Weight—Power—Rigidity

The Abrasive Tool Room Surface Grinder

Has the greater weight, power and rigidity which means extreme accuracy and a larger output. *A big advance in grinder construction.* Get the specifications for the fine points. We shall appreciate your permission to send them.

ABRASIVE MACHINE TOOL CO., EAST PROVIDENCE, RHODE ISLAND

Speeds Production



The No. 1 Universal Grinder is indispensable in the tool room

Centers swing work up to 30 inches long

Details on Request

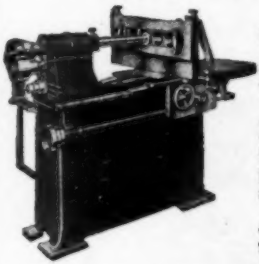
Wilmarth & Morman Co.

Master Grinder Makers

1185 Monroe Ave., N.W., Grand Rapids, Mich., U.S.A.

The "Schmidt"—

A Superior Internal Grinder



Does internal grinding quickly and perfectly. It has ball-bearing rocker arm countershaft and ball-bearing in rear end of emery wheel spindle.

It regrinds tractor, truck, and engine cylinders—indeed *any* grinding within its capacity. Occupies only 3'x5' floor space. Easily handled and operates at rock-bottom cost.

Arbor is made of vanadium steel. For rapid, accurate work it has no rival. We can make prompt delivery.

Why not get a further acquaintance with it?

B. L. Schmidt Co., Dept. A 8, Davenport, Ia.

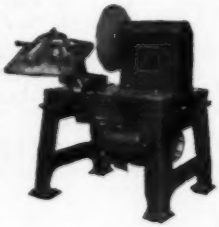
Fenn Gear Cutter Grinder

Saves High Cost of Expensive Grinders

With the FENN No. 1 you can quickly, easily and perfectly grind a Gear Cutter in less time than is required to set up an ordinary stationary grinder.

You simply take it to any corner of the shop desired, attach to the nearest lamp socket and—***go ahead.***

Pitch can be changed from 40 to 3 pitch in 30 seconds. Insures keeping your gear cutters always ground radial. Cuts brass tubing, etc., cleanly and quickly.



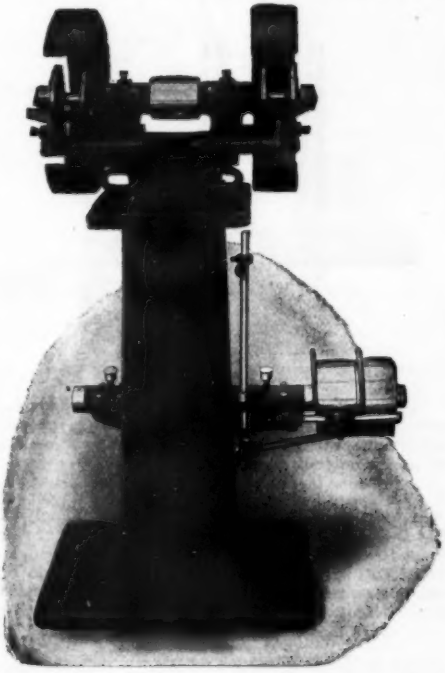
Glad to mail details

The Fenn Manufacturing Company

Hartford, Conn.

Cable Address "Fenn"—Western Union Code

GRIND it on a "BLOUNT"



No. 3 Grinder with Self-Contained Countershaft

Send for Catalog

J. G. BLOUNT CO., EVERETT, MASS.

The "Miller" Wheel Dresser

Insures Full Grinder Service



Improves and Increases Output

The "Miller" enables you to easily, quickly and accurately dress the curved, beveled and irregular shaped faces on grinding wheels—usually something of a chronic problem.

Forms radii from 0" to 1¼" concave or convex. Also dresses any angle or form desired. Tool post has three splines, so the diamond may be set at right angles with travel of the side for dressing angles. Distance to pivot center is 3", and by a simple calculation you can make precisely the concave or convex desired. Cuts out guesswork and waste.

It speeds up and secures quality production
Why not have our Folder?

Otto A. Miller & Sons

408 Moffatt Bldg., Detroit, Mich., U. S. A.

Reid No. 2 Surface Grinder

Rapid, Adjustable, Accurate

Grinds
18" Long
6" Wide
11½" High



This machine is unusually rigid. It will finish work that has been roughed off on the shaper or miller in a way that is unequalled for quality and economy. It is also a great time saver.

The "Reid" embodies the latest ideas in modern grinder design. The ways of the cross slide and table are generously grooved, insuring ample lubrication. Dust-proof bearings.

The spindle is hardened, ground and lapped, and runs on phosphor bronze bearings. Vertical adjustments to one-half thousandths of an inch.

Write for full particulars

Reid Bros. Co. 59 Park St. Beverly, Mass.

Export Department, 77 Broad St., New York City

English Agents, Oliver Machinery Co., Ltd., 201-03 Deansgate, Manchester, Eng.

Also Manufacturers of the Reid Universal Angle Fixture

Ott Grinders

Combine the essentials of ACCURACY and RIGIDITY with SIMPLICITY of design

Simplicity accounts for their price, and for their popularity among good operators.

5"x18" Plain—10"x32" Universal—6"x6" Internal

Ott Grinder Company
200 West Tenth St., Indianapolis, Ind.

Saves Moving Castings

Stow Flexible Shaft is Easily Carried



HANDY, not only for grinding castings, but for a hundred-and-one odd jobs of grinding, drilling, tapping, reaming, polishing, etc. Hurries up repair jobs. Write for illustrated circulars.

Stow Flexible Shaft Company
26th & Callowhill Sts., Philadelphia, Pa.

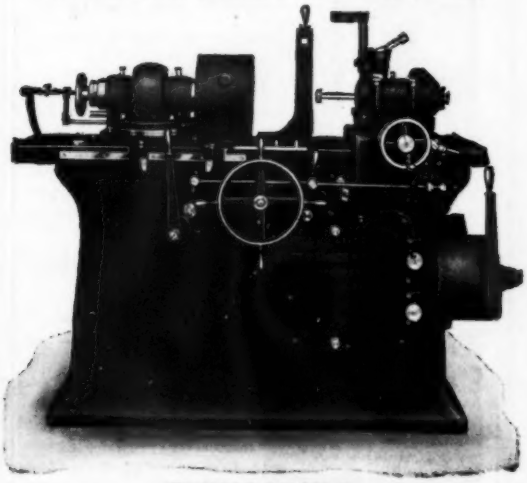
ANNOUNCING

15% Reduction In Prices

Effective at Once

Everyone knows war prices cannot continue—that reductions *must come* sooner or later. Realizing these conditions we have thought it advisable to make our reduction right away, making it possible to purchase needed new equipment now.

Order immediately and obtain advantages of early delivery.



CHURCHILL

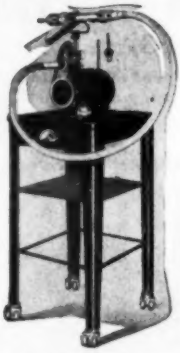
A heavy duty automatic feed Internal Grinder of simple design with time saving devices, handling a wide range of work.

Send for Catalog

Churchill-Morgan-Crittsinger, Inc.

25 Bartlett Street, Worcester, Mass.

Types ML 5–6



We build them

Strand
TRADE MARK

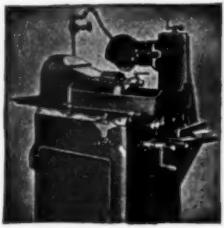
FLEXIBLE SHAFT
EQUIPMENT
For
Lathe or Shaper

This type machine is arranged for grinding or polishing in the lathe or shaper, precision work accomplished thru its use. Several other types for various jobs.

N. A. Strand & Co.
Machinery Hall, CHICAGO

Harris Automatic Hob Grinder

Economical, Safe, Accurate



Eliminates "crowding" or unevenness of cut. No risk of spoiling temper of hob or form cutter. Regular, automatic feed—no "jerky" cuts.

With the "HARRIS" an inexperienced operator turns out better work than a *first class* tool grinder-machinist can by other methods.

Being automatic, it does not need constant attention. "Set up" is very simple.

Why not let it *conserve* your EXPENSIVE H. S. steel hobs and form cutters?

Better write for our Folder H. K.

Harris Engineering Co.
Bridgeport, Connecticut

A Thoroughly Modern Grinder

The Detroit Centerless

PATENTED



The "Detroit" insures the rapid, continuous and accurate grinding of straight cylindrical pieces by means of guide blocks, *without the use of centers.*

These guide blocks securely hold the pieces true to the face of the grinding wheel in which they rotate. Blades of guide blocks are of steel, hardened and ground. The angle of contact of pieces with blades, aided by the lubricant fed to grinding point, insures free, quick, frictionless travel across wheel's face.

Figure out your Production The complete Production Table shown in our literature enables you to figure production time on all diameters. The following sample figures show three diameters only:

Diameter	Stock Removed	Feet Work Per Hour	Length of Work ½"	3"	6"
¼"	.006-.010	28	672	112	56
⅝"	.010-.015	23	552	92	46
1⅜"	.010-.015	18	430	72	36

We'll grind 25 samples free. Write for description.

DETROIT MACHINE TOOL COMPANY
TIME FLIES USE IT RIGHT
HIGH PRODUCTION MACHINERY

1487 St. Antoine St., DETROIT, MICH.

Nos. 1, 2 and 5 Shears and Rod Cutter

Nos. 3 and 4 Shears

Hercules
Shears and Rod Cutters

No. 0—Shear (Tool Makers Bench Machine) Fitted with Bushings to Cut 1/4" 3/16" & 1/8" Iron Rod and under, 1/16" Flat Iron and under.
No. 1—Shear Fitted with Bushings to Cut 1/2" 3/8" & 1/4" Iron Rod and under, 3/16" Flat Iron and under.
No. 2— " " " " - 3/8" 1/4" & 3/16" - - - - 1/4" - - - -
No. 3—Shear Fitted with Bushings to Cut 1/2" 3/8" & 1/4" - - - - 5/16" - - - -
No. 3—Plain Shear 1/2" Flat Iron and under only.
No. 4— " - 5/16" - - - - -

Shear blades have a draw-in cut with no tendency to crowd work out of shear. Pressure is directly over the cut by a rolling contact. Arm of movable blade is operated with a steel band. No springs on the machine.

Send for Shear Catalog

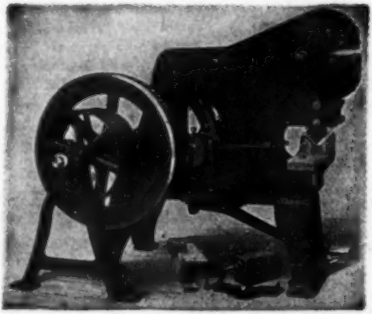
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W. C. & F. C. TUCKER, Hartford, Conn., U. S. A.

Punches—Shears—Bending Rolls

The Beloit

Combined Power Punch And Shear



Built in six sizes. **Nos. 51, 52, 53, 54, 55 and 56**

Direct connected motor or belt drive

This is the best all around punch and shear in a combined machine of moderate cost. It is heavy and substantial, and amply back geared to require the minimum amount of power; is strong, compact, and easy to operate. Can be equipped with angle shearing attachment, architectural jaw, or for special work.

We are putting out a complete line of punching and shearing machinery in both power and hand tools, also light and heavy duty bending rolls.

We do not overrate the capacities of our machines.

Write for catalogue and prices

Hendley & Whittemore Co.

100 S. State St., Beloit, Wis.

MARVEL ALL STEEL PUNCH, SHEAR and BENDER



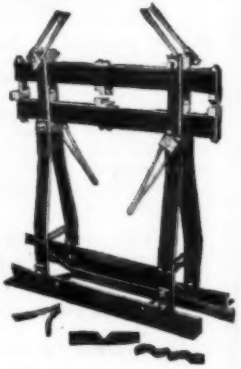
MARVEL No. 22

Punches ⅜" hole in 5-16"—2" throat.
Punches ¼" hole in ¼"—6" throat.
Shears ⅜"x2" flat bars.
Notches 1½"x1½"x3-16" angle iron.
Bends 1½"x1½"x3-16"angle iron 90°.
Bends 1½"x¼" flat bars.
Their equivalents in other sizes.

Built almost entirely of bar steel and practically unbreakable. It punches, shears, notches and bends. You can clamp more than one punch and die in position at once.

MARVEL No. 23

Punches ⅜" in ⅜"—2" tht.
Punches ¼" in ¼"—9" tht.
Shears ½"x2" bars.
Notches 1½"x1½"x¼" angle iron.
Bends 1½"x1½"x¼" angle iron 90°.
Bends 5-16"x1½" flat bars.
Splits ¼" sheets lengthwise.
Equivalents in other sizes.



Larger and heavier than No. 22 and has eccentric and link arrangement at both ends. A punch and die, V block bender, a shear, a notcher, etc., may be set in the machine at the same time ready for use. 40" between links.

Why not get acquainted with them? Want folder?

Armstrong-Blum Mfg. Co.

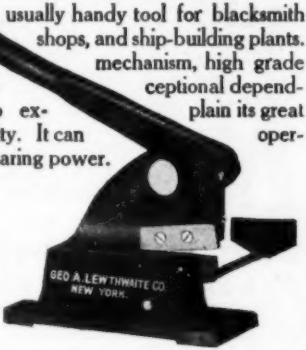
341 N. Francisco Ave., CHICAGO, ILL.

G. A. Lewthwaite Durable Tools

For Distinctive Service

SHEAR and ROD CUTTER

An unusually handy tool for blacksmith and boiler shops, and ship-building plants. Its quality mechanism, high grade material and exceptional dependability serve to explain its great productive capacity. It can operate beyond its shearing power.



Also

Pipe Benders
Bar Benders
Power Presses
Foot Presses
Etc., Etc.

BAR SHEARS, 1¼" capacity and smaller.
PLATE SHEARS, ⅝" capacity and smaller.



"Wearable" Punches and Dies

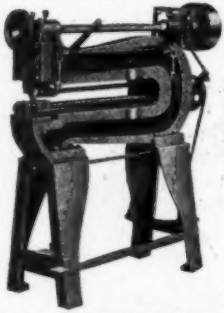
For All Makes of Machines

Specially built for toughest, heaviest service. Quality of steel, rugged design and perfection of temper account for the long list of satisfied customers we are privileged to serve.

Have you received our latest catalog of Iron-Workers' Tools? If not, let us send it.

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116 Walker St., - - New York

Gray Sheet Metal Cutter



Insures 90% Saving in Material and Labor

Cuts—not shears—perfect patterns in metal sheets up to ⅝-in., *thirty inches a minute.* Instant control. Makes clean, exact angles or curves—no finishing required. Specially adapted for cutting out gauges, jigs, gear covers, etc., etc.

Respective capacities of Nos. 0, 1, 2 & 3:

18"	throat,	1/8"	plate
34"	"	3/16"	"
36"	"	3/8"	"
36"	"	5/8"	"

Will pay to investigate

W. J. SAVAGE CO., Knoxville, Tenn.

Alfred Herbert Ltd., Exclusive Foreign Representatives.

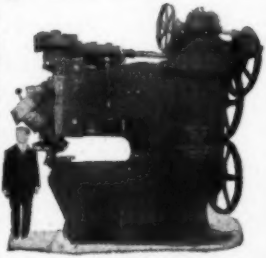
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Registered in U.S.A. and Foreign Countries

Rotary Shears

Made in 7 Sizes

Cut all gauges of sheet and plate metal up to 1 inch thick in straight or irregular shapes and openings without cutting in from side of sheet. Leaves square, true edge that requires no finishing. Used in building ships, boilers, tanks, cars & general plate and sheet metal work.



Save 50 to 90%

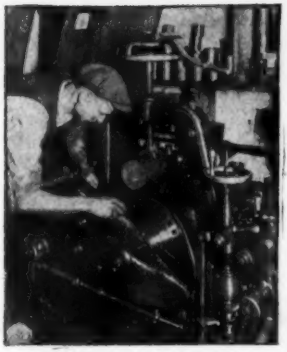
Eliminates Oxyacetylene cutting and plate planing

Write for catalogue No. 60

Patented June 3, 1913; Aug. 26, 1919.

THE QUICKWORK COMPANY, St. Marys, Ohio, U. S. A.

Cable Address "Quickwork," "W. U." and "General" Codes



One of the First Machines in this Shop

This Lea Simplex Cold Saw was one of the first machines installed in the shop of the Pedrick Tool and Machine Company of Philadelphia. That was back in 1913; the saw has been operating every working day since then, has given no trouble and is fully as good today as the day it went into service. It is a number 18 model, and handles big work with extraordinary speed and convenience.

Lea Simplex Cold Saws

employ sprocket driven blades—the principle is similar to that of the modern internal gear drive on auto truck wheels. Torsion is reduced, the blade is supported and driven with great rigidity, the power is greatly conserved—upfeed and arch construction are other noteworthy features. ***Ask us for details.***

Made by Earle Gear & Machine Company, Philadelphia

Distributed by

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FAIRBANKS O.K.



Style "C"



The Hinge



Style "Y"



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GITS OIL CUPS

Give perfect satisfaction where others fail. State style and size in which you are interested, and we will send free samples and catalog.

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1940 SO. KILBOURN AVE., CHICAGO



Style "H"

Save Your Bearings

Patented Spring Cover, found only in "Conus" Oil Cups



WITH

CONUS

OIL CUPS

Ask for Catalog and Sample

The CONUS is Dust Proof, Stays Put—Economical and Durable.

They are fixed without tapping and made of the best Swedish steel heavily nickeled.

Indispensable for Maximum Shop Output

American Galco Company,
Grand Central Palace, New York City

Its Fine "Wisdom Teeth"

Take a Toe Hold on the Work



A Hack Saw Blade, like a file, should not be drawn backward over the work.

Note the fine "Wisdom Teeth" on the toe end of the Duplex Blade, which mark and start the cut. *They take a toe hold on the work,* eliminating shelling of the teeth and blade breakage.

The Peerless Duplex Patented Hand Hack Saw Blade is the result of the wisdom which comes from a long and successful practical experience, and the wisdom of the use of fine teeth to start the cut makes them "Wisdom Teeth" in every sense.

Worth more, but sold at regular price.

Ask your nearest dealer
Or write direct to—

Peerless Machine Co.

Racine, Wis., U. S. A.

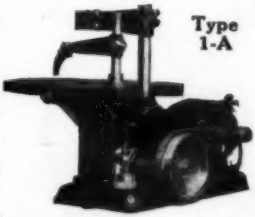
Peerless DUPLEX
"The best blade made"

J. & B. Filing and Sawing Machine Doubles the Output

With this machine an apprentice can turn out more and better work than a first-class mechanic without one. It doubles output—often more.

Files punches and similar work where file does not go thru or past the work, and where it is necessary to file to a shoulder.

Uses standard files from 3" needle to a 12" flat or bastard, and any hack saw blade.



Type 1-A

Write for Illustrated Folder

JOHNSON & BIDDLE TOOL CO., ELKHART, INDIANA

Quick, Economical, Productive

Peter's Abrasive Metal Cutter

This handy abrasive cutter cuts high speed or any kind of hardened tool steel in less than one-fourth the time required to nick and break it. Saves wasting stock, and cuts the exact shape desired. Saves 75% in power and time.

8" Size $22.50, with C. S.
Splendid for tool room. Cuts high-speed steel up to ½" square.

12" Size $60, with C. S.
Cuts up to 2½" diameter, round or square, at any angle up to 45 degrees. Ball bearing.



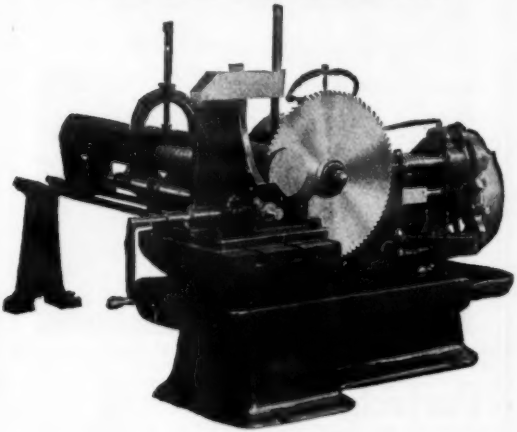
15 Days' Free Trial

Write us or ask your dealer

PETER BROTHERS MFG. CO.
115 Railroad St., Algonquin, Ill.

No. 6 Metal Sawing Machine

Built Like a Machine Tool



CAPACITY

8½' Rounds	12' I-Beams
7½' Squares	7x10' Billets

WILL CUT IN MULTIPLE

34 Bars,	1'	Diameter	8 Bars,	2½'	Diameter
19 "	1½'	"	4 "	3'	"
8 "	2'	"	4 "	3½'	"

TWO Saw Speeds for hard and soft stock.
FIVE changes of feed for each saw speed.
Feeds from 3-16' to 2' per minute.
Automatic Feed.
Automatic Return of Carriage.
Rack and Pinion Stock Feeding and Gauging Device.
Four other sizes; also Automatic Saw Sharpening Machine.

Catalogue

Cochrane-Bly Company

Rochester, N. Y., U. S. A.

DO You Use AIR?



Partridge Light Punch Press



For making novelties from sheet metal, including such operations as stamping, blanking, piercing, bending, forming, perforating, embossing, shearing and wire cutting. Has exceptional strength for its size.

Carefully adjusted to secure accurate working of the dies, and to prevent shearing. Pendulum action of lever gives a stroke of maximum power without tiring operator. Workmanship and material the best.

Write me for the interesting price

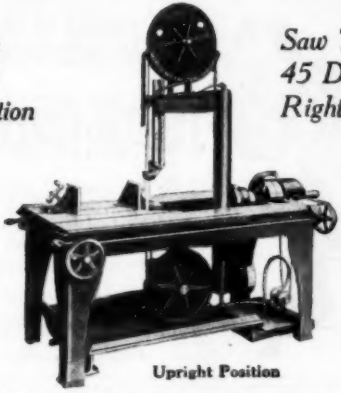
E. O. PARTRIDGE, 2041-2049 W. Lake St., CHICAGO

Also Bench, Column & Cabinet Grinders, Polishing Lathes, Light Punch Presses, Hollow Mills, Countershafts, Chuck Arbors and Saw Mandrels

Marvel Metal Cutting Saws

Ample Guard Protection

Saw Tilts 45 Degrees, Right or Left



Upright Position

Our No. 8 Universal Metal Band Saw is of latest and most complete design. Saw blade is mounted on two flanged wheels supported by a frame of unusual rigidity and swivels 45 degrees right or left. Accurately machined vise jaws 6"x12" have quick action, and are reversible and adjustable. Throat capacity: depth 18", height 20"; at 45 degrees angle, depth 18", height 14".



Saves stock

Saves time

Saves labor

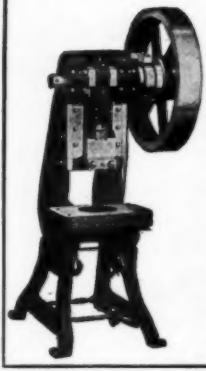
Saves money

Glad to mail you full specifications

Armstrong-Blum Mfg. Co.

341 N. Francisco Ave., CHICAGO, Ill.

Here Is A Press



With Plenty of Steam Back of THE PUNCH

HIGH DUTY
ROCKFORD
PUNCH PRESSES

Made in straight side and inclinable types. Their great power backed by rigid design enable them to do the work you demand and stand up to it.

Write For Catalog

Rockford Iron Works
Rockford, Ill.

An Exceptionally Big Producer



WILLARD
O. B. I. Power Press

It is ruggedly built and capable of undergoing long and rigorous usage. It combines maximum efficiency with unusual symmetry.

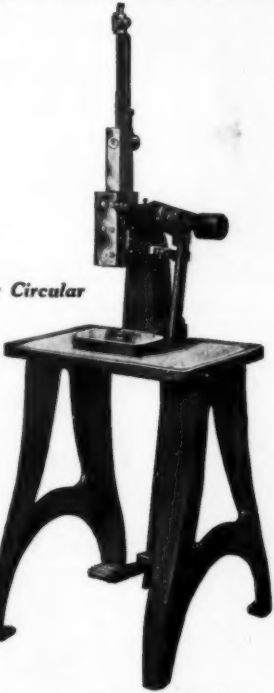
Shaft made of high grade steel specially treated to withstand sudden and heavy strains. Clutch is a square bolt located in the shaft collar parallel to the shaft. Safety lock enables operator to lock clutch bolt securely in the collar. Positive knockout in the ram.

Let us send you full data about this superior press.

The Willard-Middletown Machine Co.
Cincinnati, Ohio
Successors to The Willard Press & Tool Co.

Spring Foot Press

Capacity (steel) 1" Dia., .055 Thickness

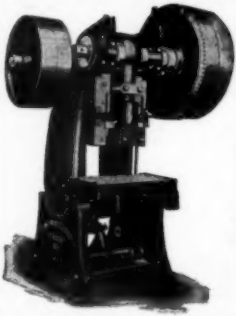


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The Taylor & Fenn Company

Hartford, Conn., U. S. A.

L-J Heavy Duty Inclinable Power Press



The No. 5 Combination Geared Press, shown in cut, has a capacity for 52 tons pressure. It is also made in the plain flywheel and the geared type.

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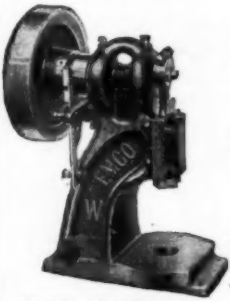
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Elkhart, Indiana

The Emco "W"

Bench Power

Punch Press



NOW MADE IN
¾, 1¼ or 1¾" stroke

Record Production:

114,000 operations in
11 hrs. by hand feed

Also Emco "V" Bench

HORN PRESS *for* **ASSEMBLING**

It Won't Repeat

Circular on request

The Enterprise Machinery Co., 28 S. Clinton St. CHICAGO, ILL.

"T. H. L." Quality Front Lever Bench Punch

Always Makes Clean Holes and it Lasts Longer



Price $60

Extra Punches, 35 cents each, $3.75 per dozen. Extra Dies, 40 cents.

Capacity 13/32" hole thru 1/4" steel, or 11/32" thru 5/16" steel.

Weight 70 lbs.

Adjustable gauge. Cannot lose alignment with die. Made of best materials. All parts interchangeable.



The "T. H. L." Punches and Dies

Have unusual durability and make the maximum number of holes. They're made of superior steel and every punch is tempered individually, so as to insure absolute accuracy in tempering.

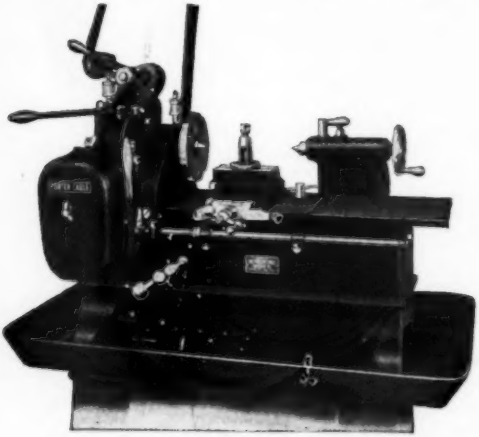
A trial order will please you

T. H. Lewthwaite Machine Co.

417 East 31st St., *(Est. 1890)* **New York City**

Porter-Cable

Manufacturing Lathe



Specially designed for Economical Production of Duplicate Parts in Large Quantities

TWO SIZES:

9" Swing { 14" Between Centers / 20" Between Centers

Write for booklet H showing attachments

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Syracuse, N. Y.



Barnes 18 inch Lathe

Bronze Boxes

Steel Racks

Hole in Spindle 1⅝" Diameter

For Garage, Repair Shop and Manufacturing Purpose

6 ft. Bed $625.00
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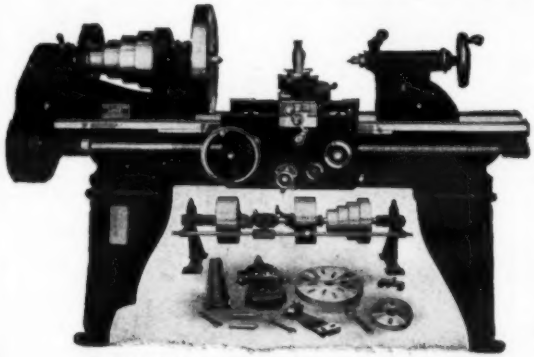
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W. F. and John Barnes Co.

123 Ruby St., Rockford, Ill.

SOUTH BEND LATHES

FOR THE MACHINE AND REPAIR SHOPS



Price includes equipment as shown in illustration

Made with Straight or Gap Bed

11"	South	Bend	Lathe	.....	$ 250.00
13"	"	"	"	.....	385.00
15"	"	"	"	.....	483.00
16"	"	"	"	.....	550.00
18"	"	"	"	.....	735.00
21"	"	"	"	.....	900.00
24"	"	"	"	.....	1,250.00

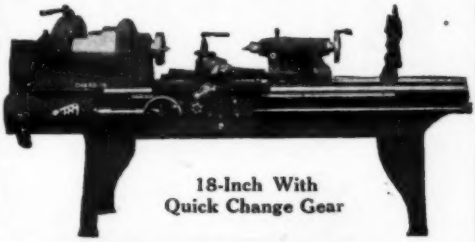
South Bend Lathes have been on the market 14 years

New York Office: - 2½ Murray Street
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SOUTH BEND LATHE WORKS, 600 E. Madison St., SOUTH BEND, IND.

—thru bronze without tolerance

is the daily stunt of "Chard" Lathes



18-Inch With
Quick Change Gear

THE SUPER-QUALITY of the "Chard" manifests itself in various ways—the boring of holes thru bronze without tolerance of any kind is just an example. This modern Lathe satisfies the demands of the most exacting superintendent or whoever is responsible for results in shop and tool room.

"Chard" Lathes are the embodiment of superior mechanical excellence. They have the power and rigidity to take the heaviest cuts, with the accuracy and convenience that makes for quality and maximum output. Five sizes, from 16" to 28".

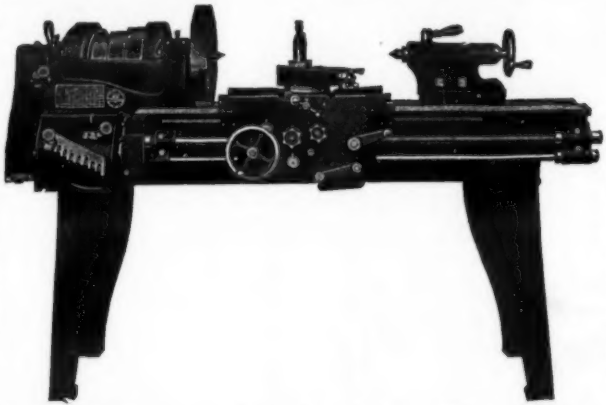
Glad to mail the specifications and answer questions

Chard Lathe Company

Newcastle, Ind.

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Monarch Lathes

give universal satisfaction to the user. They have been doing this for years, and this accounts for the ever increasing demand for **Monarch Lathes.** Built in all styles and with any attachments desired.

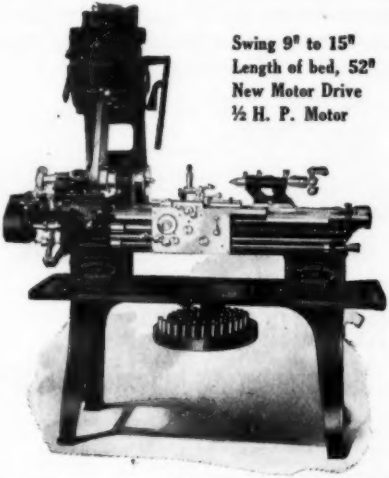
Sizes 10 to 30-inch Swing

Sold by a leading Machinery Dealer in every machinery center.

The Monarch Machine Tool Co., Sidney, Ohio

Extra Quality Lathe Service

"Cataract" Quick Change Lathe



Swing 9" to 15"
Length of bed, 52"
New Motor Drive
½ H. P. Motor

For turning out small, difficult and rigidly accurate lathe work involving a variety of operations the "Cataract" leaves nothing to be desired. It is the latest finished product of nearly 40 years' specialized machine tool service.

Its outstanding features are accuracy, interchangeability, quality and variety of production.

It has cast-iron adjustable headstock, and hardened spindle. A 60-hole index in rear spindle driving gear provides for cutting double, triple or quadruple screw threads. Lead screw, 6 pitch 1"x39" changed to 10 pitch by gears in reversing gear box. The capacity of the machine is greatly increased by 3-in. raising blocks.

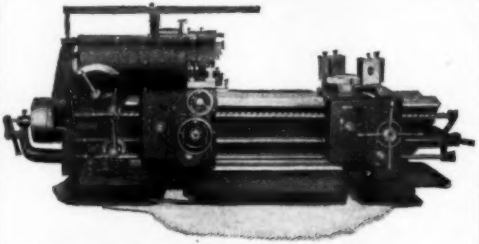
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HARDINGE BROTHERS, Inc., Chicago, Ill.

STEINLE TURRET MACHINE CO.

MADISON, WISCONSIN

Originators of the Heavy Duty Full Swing Side Carriage Turret Lathe



PRE-EMINENTLY—
A Manufacturing Machine. WHY?

The first and most important question is one of design, for good design must acknowledge the basic principles underlying the construction of a good machine tool which makes its proper operation entirely satisfactory to those benefiting through its use.

To duplicate a wide range of work rapidly, accurately and economically, the machine must have speeds sufficient to accommodate all diameters and character of work within the range of the machine, power to pull heaviest cuts within the capacity of the best cutting steels, reliability to withstand heavy continuous service day in and day out, facilities for simple or extensive tooling equipment, an ease of operation including power application to feeds and traverses, and convenient location of levers controlling the various functions.

These are a few of the superior features of the Steinle Full Swing Side Carriage Turret Lathe.

May we furnish you with further details covering design or construction of our machine, together with tooling recommendations for the proper production of your work, or ask to have a qualified representative call in order to go personally and thoroughly into the question of what Steinle methods mean as applied to your production questions?

THE MACHINE TOOL ENGINEERING COMPANY

Incorporated

Singer Building, 149 Broadway, New York

Are You In Need of Machine Tool Equipment?

We are in position to offer products of the following manufacturers for whom we are exclusive representatives in the metropolitan territory:—

STEINLE TURRET MACHINE CO.—
Heavy Duty Turret Lathes.

OHIO MACHINE TOOL CO.—
Planers and Shapers.

ROCKFORD TOOL COMPANY—
Tool Room and Manufactur'g Lathes.

FITCHBURG GRINDING MACHINE CO.—
Cylindrical Grinders.

McDONOUGH MANUFACTURING CO.—
Daniels Automatic Multiple Spindle Chucking Machine.

TAYLOR & FENN COMPANY—
Sensitive Drills, Vertical Milling Machines, Duplex Spline Millers, Bore Grinders, etc.

CRAFTSMAN TOOL COMPANY—
Continuous Rotary Millers.

B. L. SCHMIDT COMPANY—
Cylinder Grinders.

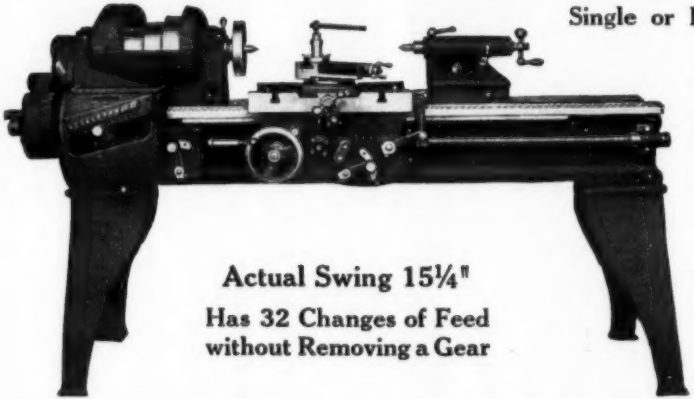
DAUBER-KRATSCH COMPANY—
Sensitive Radials and Drilling Machines.

HANSON-WHITNEY MACHINE CO.—
Vertical Tool and Die Shaper.

We also carry a representative line of stock on which immediate delivery can be made.

WE SOLICIT YOUR INQUIRIES

The "C-J" NEW 14" Quick Change Gear Lathe



Single or Double Back Gear

A 100% Lathe in all particulars. It cuts any one standard or odd thread up to 64 to the inch, right or left hand, precisely and perfectly.

It combines accuracy, mechanical skill, durability, and quality output.

All tools are fully guaranteed and tested out to the highest point for accuracy. The quality is higher than the price.

Why not have us mail full particulars on to you?

Actual Swing 15¼"

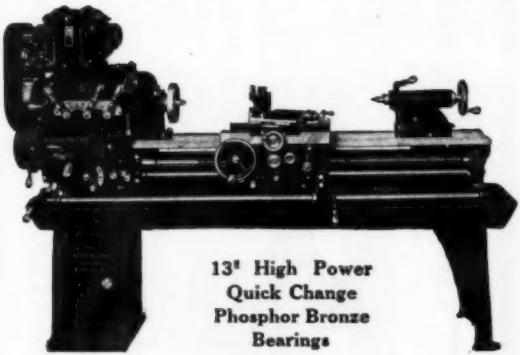
Has 32 Changes of Feed without Removing a Gear

THE CARROLL-JAMIESON MACHINE TOOL CO., BATAVIA, OHIO

The W-I-L-L-A-R-D

(Mattman-Bratten) D. B. G., Q. C.

Tool Room Lathe



13" High Power
Quick Change
Phosphor Bronze
Bearings

It is designed for rapid, varied, continuous, precise tool-room lathe operations. It has chrome nickel steel spindle, forged and bored from the solid, accurately ground and guaranteed interchangeable. It is impossible to throw in two different speeds at the same time.

Headstock is a full box section with proper internal ribbing, entirely self-contained. It has 2½" bearing on the bed. There are six direct speeds available and six extra speeds possible thru back gears. ***Twelve Speeds in all.***

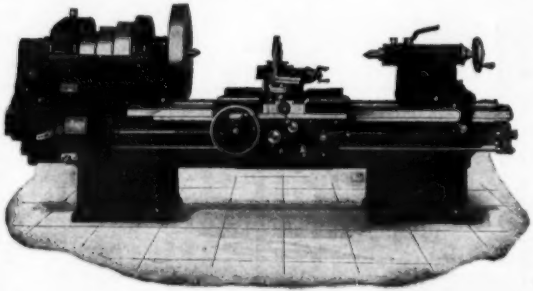
Chrome nickel steel gears. Hardened sliding gears. Headstock gears run in oil. Centralized control. Phosphor bronze bearings. Motor drive—direct or alternating current.

It will pay you to investigate the merits of this distinctive and superior lathe. Full details on request.

The Willard Machine Tool Co., Inc.

F Street, Box 784 - CINCINNATI, O., U. S. A.

SIDNEY LATHES—For All Requirements



The Sidney Line of medium and heavy duty lathes includes a lathe for every class of work, regardless of the size or type of shop you are running.

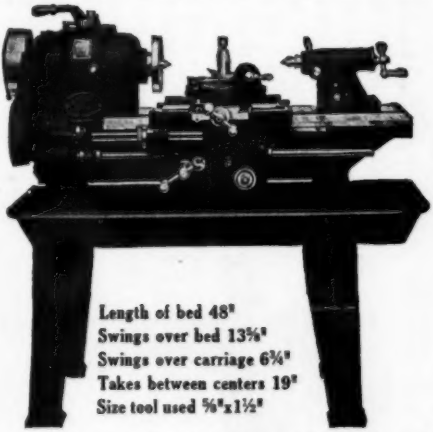
Lathes of medium duty in 14, 16, 18 and 20-inch swings, and of heavy duty in 15, 17, 19, 25, 27, 30 and 36-inch swings.

Send for Bulletin No. 45.

THE SIDNEY MACHINE TOOL CO., Sidney, Ohio

Increase Production with the

Adams Short-Cut Lathe



Length of bed 48"
Swings over bed 13⅝"
Swings over carriage 6¾"
Takes between centers 19"
Size tool used ⅝"x1½"

This is a specialized lathe for specialized work—quick output of short and small duplicate parts. Simply designed and affords maximum power, speed and operating convenience. Occupies only 4'6"x2'4" floor space.

Six speed changes thru one operating lever and sliding clutch. Drop forged steel gears run in oil bath, insuring perfect lubrication. Tailstock runs flush to headstock, so the smallest pieces can be handled.

The **ADAMS SHORT-CUT eliminates wasting expensive power and labor in running heavy duty lathes to turn out short and small pieces.**

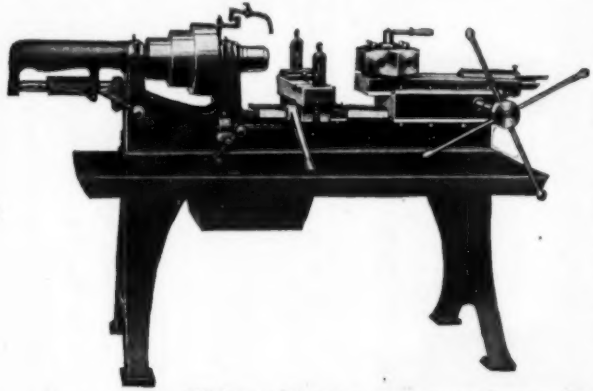
How about having our Folder?

Seneca Falls Mfg. Co., Inc.

377 Fall Street, Seneca Falls, N. Y.

Successors to O. R. Adams Mfg. Co., Inc.

No. 4 S. & K. Screw Machine Makes Quick, Heavy Cuts



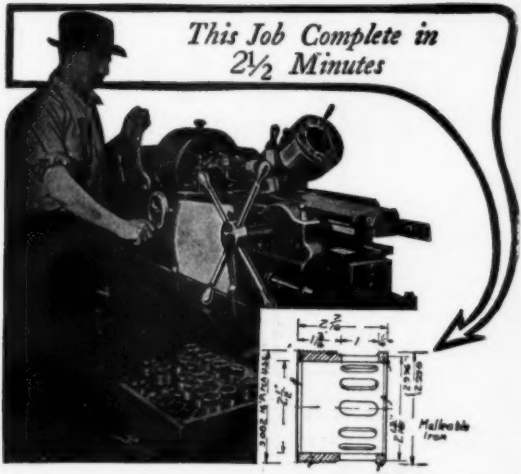
This new Model "D" No. 4 Friction Head Screw Machine is of the latest design, combining maximum speed and coarsest feeds with dependable accuracy. It affords ample power, ruggedness, an unusual range of cutting capacity and high grade mechanical excellence. It distinctively features a number of new improvements, eliminating the recognized defects of earlier makes.

Unexcelled for ideal thread-cutting

Without obligation, may we send you a detailed description?

SMURR & KAMEN COMPANY, 328-330 N. Albany Ave., CHICAGO, ILL.

THE TILTED TURRET
ARE CLEAR TRACK [redacted] THE STOCK



The TILTED TURRET MACHINES

are **accurate** and **productive.** Fifteen years' of thoroughly tested service. A size for every class of manufacturing.

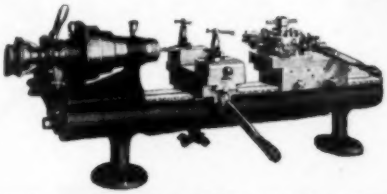
Ask the User

Catalog "H"—Its Free

TILTED TURRET MACHINE CO.
BRAZIL, INDIANA, U.S.A.

POTTER No. 5 BENCH LATHE

Combines Superiority and Economy



This modern bench lathe insures rigidity, precision, adaptability and convenience. Among its features are: Double Cross Slide, Lever Tailstock, Tailstock Turret, Chasing Attachment, Grinding Attachment, etc., etc.

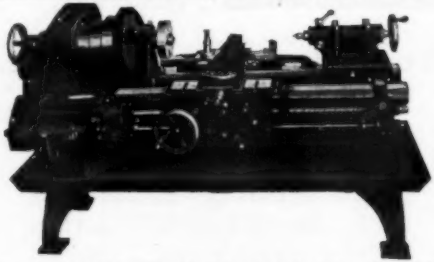
Potter No. 5 Bench Lathe spells OPPORTUNITY. Write now.

S. A. Potter Tool & Machine Works

71 East 130th St., New York City, N. Y., U. S. A.

"LEHMANN LATHES"

Three Sizes—16/18¼" and 18/20¼" and 22/24⅜" Swing. Beds 7' to 17'



These are strictly high-grade engine lathes of superior design and thoroughly good workmanship and material. Built for accuracy and production.

Write for complete specifications and details. Do it today—NOW.

LEHMANN MACHINE CO., 608 S. Broadway, ST. LOUIS, U. S. A.

The Barker "Non-Stop" WRENCHLESS Chuck

In the output of duplicate pieces on the lathe more time is often lost between cuts than is required for the actual machining itself. *The "Barker" reduces the time between cuts to the lowest possible notch.*

It avoids the need for the installation of an elaborate and costly Air Chuck System. Adapted for ALL kinds of lathe work. No tools whatever required.

One simple pull on the lever and it grips firmly and safely. Releases instantly. Can be used on *any* kind of lathe.

THOMAS ELEVATOR COMPANY
CHUCK DIVISION
31 So. Hoyne Ave.
CHICAGO, ILLINOIS



Sizes,
6" to 16"
Made with
2 and 3 jaws

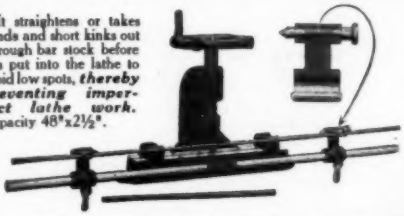
Centers
Automatically

Get our Catalog—better still, a try-out

Puts Good Dollars in Your Pocket

"Towsley" Improved Straightener

It straightens or takes bends and short kinks out of rough bar stock before it is put into the lathe to avoid low spots, ***thereby preventing imperfect lathe work.*** Capacity 48"x2½".



Also useful for repair work on bent journals, shafting and axles, and for such special work as bending and pressing tubing, axles, etc.

Full details on request

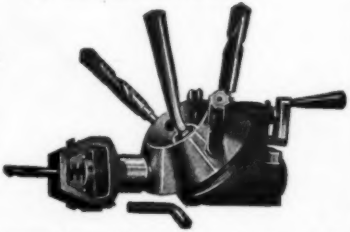
JOHN T. TOWSLEY MFG. CO., 1037 Woodrow St., CINCINNATI, OHIO

Newman Tail Stock Turret

Converts Any Engine Lathe
Into An Efficient Turret Lathe

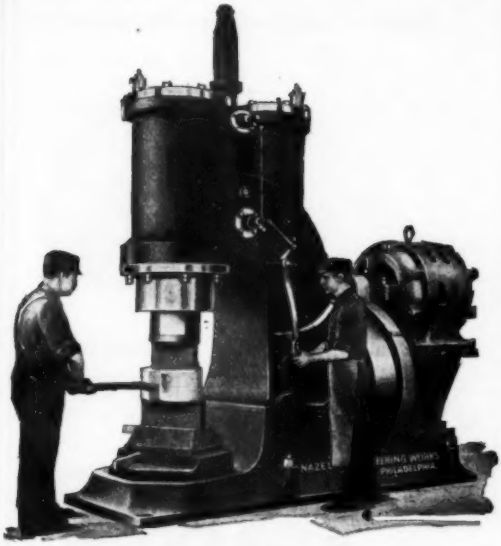
IN 15 SECONDS

This, and other Tools and Devices, described in Folder "H"



NEWMAN MANUFACTURING CO., Cincinnati, O.

The Nazel Air Hammer



Noted For Its Blow And Control

A self-contained unit, HAMMER AND COMPRESSOR COMBINED, built in three types, six sizes arranged for BELT OR DIRECT MOTOR DRIVER, with capacities up to 7 inches square, for all manner of jobbing, manufacturing and certain classes of drop forging.

Write for the Nazel Hammer Book; it's yours for the asking.

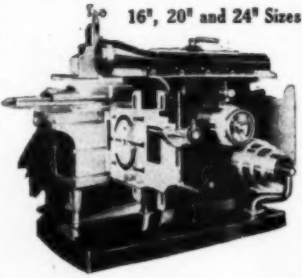
Nazel Engineering & Machine Works,
Nicetown, Philadelphia, Pa.

Milwaukee Shapers

Simple—Positive—Rigid—Productive

Milwaukee Back Geared Crank Shapers are a rare combination of simplicity, precision and power. Positive stroke control and instant adjustment. Graduated tool head, and vise swivel. Effective solid steel pinion friction locking device. Powerful back gearing. Massive and rigid column. Tilting top adjustable from 0 to 7 degrees.

16", 20" and 24" Sizes



Send for Folder

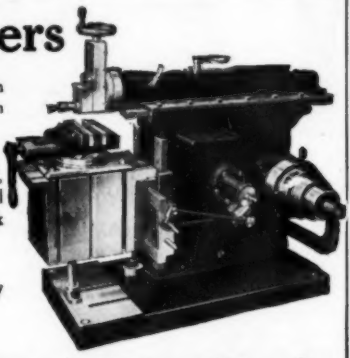
MILWAUKEE SHAPER CO., **Milwaukee, Wis.**

Shapers

The best medium priced Shaper on the market.

Built in 16", 20", and 24" sizes, all back geared crank machines.

A few for early delivery.



The Osborne & Sexton Mchy. Co.

Columbus, Ohio



Rhodes 7" Horizontal 3½" Vertical Shaper

The RHODES is applicable to a wide range of accurate machining. For light shaping and slotting where accuracy counts, the RHODES is the thing. Small in size, low in upkeep, big in economy.

Write for illustrated circular to Dept. H. L.

The Rhodes Mfg. Company

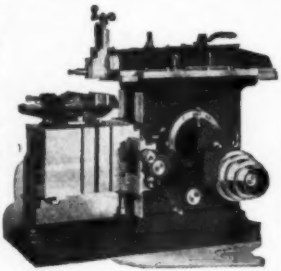
Hartford, Conn.

Massive and Powerful

COLUMBIA HEAVY DUTY SHAPERS

Combine unusual weight and rigidity with latest improvements and superior mechanism. Turn out first class shaper work rapidly and accurately.

Massive base and table. Heavy box column, extra deep. Ram of girder type, strongly built for rigid stroke. Quick change feed. Heavy driving gear. Ring oiled bearings with renewable bushings. Quiet running.

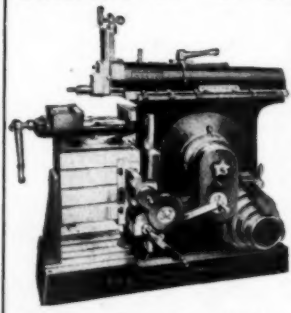


Details on request, covering sizes 16", 20", 24", 28" and 32"

The Columbia Machine Tool Company
Hamilton, Ohio

Makes a Big Clean Cut

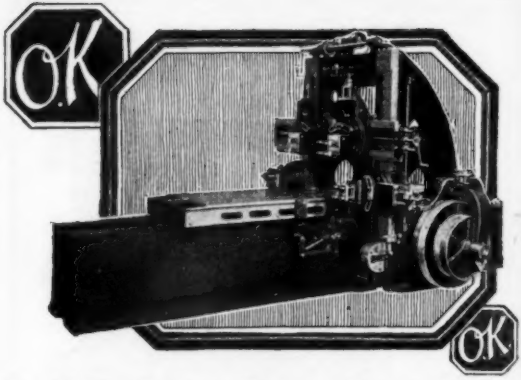
STAMCO 16" B. G. Crank Shaper



Its base is extended and unusually deep, insuring rigidity. Has large planed surface with "T" slots. Extra deep column and exceptionally wide at the base. Bull gearing cast solid in frame, 50% heavier than other makes, eliminates wear due to springing and friction. Feed can be varied or reversed while the machine is in motion, and allows instant adjustment. Table 14"x17"; Cross feed, 24"; Vertical feed, 15".

Want Details?

THE STREINE TOOL & MFG. CO., New Bremen, Ohio



Rapid Production from a Heavy Planer

Here is a big heavy planer that is especially known for speed. If that is important to you read the story below.

Rockford Planers

are built with a cutting speed of 30 feet per minute and 90 feet return or with gear boxes giving four cutting speeds 22, 30, 38 and 46 feet per minute with constant return of 90 feet. The usual screech of shifting belts is absent on a Rockford because aluminum drive pulleys are used. Saddles are made right and left hand allowing tools to be used close together and are graduated around the entire circule adjustment on either side of the machine.

Want to know more about it? Then write for further details

Made by Rockford Machine Tool Company, Rockford, Ill.

Distributed by

The Fairbanks Company

Administrative Offices, NEW YORK

Branch Houses

Albany	Buffalo	New Orleans	Providence	Tulsa
Baltimore	Chicago	New York	Rochester	Utica
Birmingham	Cleveland	Paterson	Scranton	Washingtc::
Boston	Detroit	Philadelphia	St. Louis	Havana
Bridgeport	Newark	Pittsburgh	Syracuse	Kingston

FAIRBANKS O.K.

SHAPERS

12", 14", 16" Plain Crank, 16", 20", 25" B. G. Crank, either Cone Driven or through Speed Box.

28" and 32" Back Geared Crank, Single Pulley Drive.



The Smith & Mills Co. Station B., Cincinnati, O., U.S.A.



Type 6

Autex Extension Reel

Previous types have been eminently satisfactory to the user, but the present type possesses additional features that places the "Autex" clearly in a class absolutely exclusive. Our motto has been GOOD, **BETTER, BEST.**

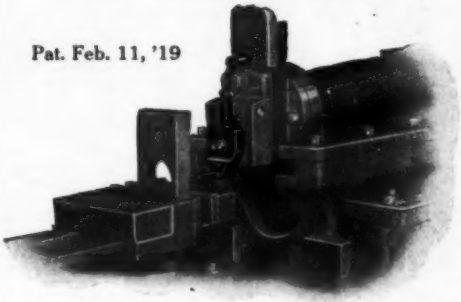
Write for particulars

The Cincinnati Specialty Mfg. Co., Inc.

1913-21 Powers St., Cincinnati, Ohio

BRUNO
Slotting Attachment
for Shaper and Planer

Pat. Feb. 11, '19



A cutting tool holder which converts your shaper into a Horizontal Slotter and makes possible the most intricate shaping such as is required for dies, jigs, gauges, keyways, slotting, etc.

Write for circular. Dept. H.

H. A. MOORE CO.
ROCHESTER, N. Y., U. S. A.

No Chance of Faulty Gears



The RED-E

The RED-E Milling Dog and Driver insures accurate spacing, since the ball sliding in grooved jaw compensates for the different angle in the driver at various positions of work. Dog cannot loosen, and there is no binding, cramping or lost motion. Nor does it require adjustment for correct milling of odd pieces. It cuts gear teeth that are mechanically perfect.

Why not send for Catalog H?

The Ready Tool Co.
Bridgeport, Conn.

RED-E TOOLS

The Chain of Production

Like a chain, your product is only as strong as its weakest link. Poor gears are weak links in many products.

The experience and ability of this organization as reflected in the manufacture of



Thorofine GEARS

are of value to you in improving your product. Thorofine gears are the result of better practice in the use of men and materials, machinery and intelligence.

Your gear needs always interest us. We build Thorofine gears to suit your product. All sizes up to 3 pitch and 20 inches in diameter. Your inquiry invited. ***Write us today.***

Modern Tool & Stamping Co.
313 South Clinton St., Chicago, Ill.

Nothing too small——————nothing too intricate

STANDARDIZED BOSTON GEARS

1200 SIZES



Our stock of 300,000 is at your disposal from

CHICAGO BRANCH and from the FACTORY

Other large stocks at our Distributors in Leading Cities

1920 Catalog giving complete specifications sent on request

BOSTON GEAR WORKS

Branch and Salesroom
623-625 W. Washington Blvd., CHICAGO, ILL.
Main Office and Factory
Norfolk Downs - - QUINCY, MASS.



Save Time
Save Labor
Save Tools

by

Supporting your long stock

On the ***"ANYHITE" Adjustable Stock Support,*** for Hack Saw, Drill Press, Punch Press, Pipe Machine, Milling Machine, Screw Machine, Shaper, Planer, or for Racking Heavy Shafting or Tubing.

We will send you one on 30 days' trial. Price $15.00 for Standard Height. Special sizes built to order.

The Will-Burt Company

Orrville, Ohio

200 Bar Racks Left

At the Old Low Price



Better Order Now
Before Inventory

The "HANDIEST RACKS" are the handiest things you ever saw for neatly storing bar stock in compact space, where it is easily assorted, counted and handled. You'll need them at inventory.

If the foundry hadn't been slow in delivering Racks an old order at the old price, they would have been sold long ago. ***Your gain!***

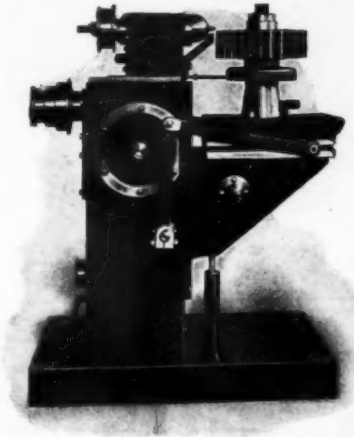
Better order early
On trial, if you wish

Wm. S. Yohe Supply Co.

503 Mahoning Road, N. E., Canton, Ohio

25 Perfect Teeth A Minute

That's the Guarantee that Goes With Every "Cross" Gear Tooth Rounder



YES, it makes every tooth a perfect half circle—any pitch 5/7 or finer—the only correct form for sliding mesh gears. Other forms, such as starter-ring and pinion forms, can also be rounded.

The "Cross" is the only machine which produces properly rounded Tank and Tractor Gears on a ***production basis.*** Just think that over.

Use a "Cross" and cut your costs

Cross Gear & Engine Company

Detroit, Michigan

Patented here and abroad; sold ONLY by us

Abbott Steel Bearing Balls

High Grade—Highly Finished

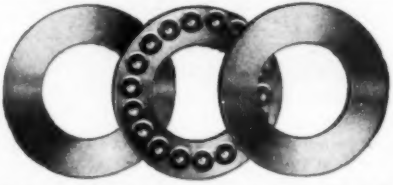


We shall be glad to have your inquiries and make estimates

The Abbott Ball Company

Elmwood District, Hartford, Conn.





THRUST BEARINGS

FLAT OR GROOVED RACES

from ¼" **SHAFT DIA., UP**

ONE BEARING—OR ONE THOUSAND

THE GWILLIAM COMPANY

23 FLATBUSH AVE., BROOKLYN, N. Y.



BY INVITATION MEMBER OF

NEW YORK, U.S.A.

How Many

You can buy as many Bunting "In Stock" finished Bushings as you want, whenever you want them. Long run prices on small orders.

Write for Stock List "W"

The Bunting Brass & Bronze Co.

755 Spencer St., Toledo, O.

NEW YORK CITY
Grand Central Palace

CHICAGO
722 S. Michigan Ave.

CLEVELAND
1362 East 6th Street



CULLMAN SPROCKETS

STOCK AND TO ORDER





Diamond, Whitney, Baldwin, Duckworth and Coventry Chains, Block, Roller and High Speed Silent types on hand

CATALOG

CULLMAN WHEEL CO., CHICAGO

1359 ALTGELD STREET

Take Care of Your Workers



Terrell's Improved Steel Lockers

Are clean, vermin proof and occupy less floor space, along with lower insurance costs. There is less fire risk and they keep out sneak thieves.

Proper clothes closet provision in the shape of these Improved Steel Lockers in any plant at once imparts to it an increased sense of order, discipline, cleanliness, forethought and up-to-dateness.

In these days especially it yields a good return in various ways to make proper provision for the safety and comfort of your employes. This in itself helps to attract and keep the best class of workers.

In some states the statutes require their use.

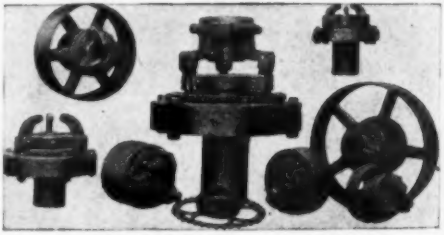
Without obligation write us about your Locker needs

Terrell's Equipment Company

Hall & Division Sts., Grand Rapids, Mich.

Also ask about Terrell's Steel Bins and Shelving

Refer your clutch problems to us
Solving them is our business



Special Clutches — a specialty

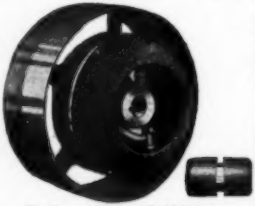
Catalogue cheerfully sent on request.

National Clutch Company

1859 Fulton St., Chicago, Ill.

Edgemont Friction Clutches

Conserve Pulley Power



Enclosed Type, Self-Oiling

The "Edgemont" also insures that you get maximum service from high speed tools, since it is up to the clutches to drive them to their full cutting capacity.

However heavy the duty required, they stand up perfectly under it. Made in sizes 9" to 18". No springs or fragile parts to get out of order. Run easily, quietly and release instantly. They pull *all* a belt will at any speed.

Let's put you in touch with this Power Conserver

The Edgemont Machine Co.

Dayton, Ohio

Special Clutches and Transmission Machinery for all purposes.

Redface Pulleys

Sheaves and Fly Wheels



PERMANENT: They are permanent, as they are not affected by age, heat, cold or moisture.

RELIABLE: They do not loosen up under vibration or intermittent loading.

RUN TRUE: They run true, steady the line shaft, and have a very small load due to windage.

REDFACE PULLEYS are especially adapted to use on motors, fans, pumps and special machinery.

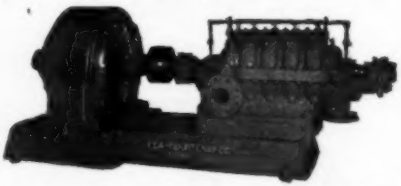
Catalog mailed promptly upon request

Pyott Foundry Co.

Cast Iron Pulleys, Sheaves and Fly Wheels

328 N. Sangamon St., Chicago, Ill.

Lea-Courtenay Centrifugal Pumps —for boiler feeding



The Lea-Courtenay single-suction multi-stage pump is used largely for boiler-feed service, and is one of the highest class of pumps built by this Company. It is built in sizes from 3-inch to 10-inch and up to 5 stages. The peculiar feature about this type of pump is that it has a volute at each and every stage. It has no diffusion vanes but is fitted with an hydraulic balancing device and produces an extremely flat efficiency curve.

LEA-COURTENAY COMPANY, 10 Maine St., NEWARK, N. J.

MAKERS OF CENTRIFUGAL PUMPING MACHINERY

"R-O-L-L-W-A-Y"—Another Name for Perfect Tool Lubrication



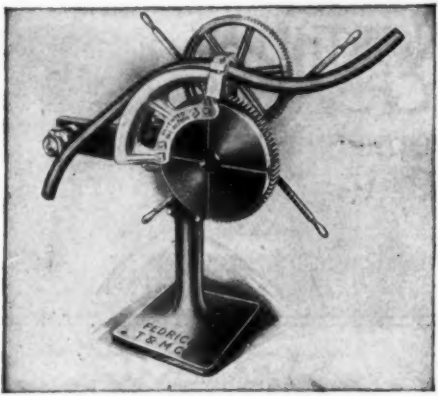
ROLLWAY PUMPS hit the high spots of Quality Lubrication Service. They eliminate the faults and defects of earlier and cruder types of lubrication pumps. They are self-priming, won't clog, need no relief or check valves and no overflow piping. Operate at low speeds. Small in size, but large in capacity. Will pump oil or water equally well, from 2 quarts to 150 gallons per minute.

30 Per Cent Pumping Increase At Less Cost

Write us about your lubrication problems

Michigan Machine Co., Detroit, Michigan

Our Pipe Benders Meet The Demand



Ever since their invention our hand Pipe Benders have had a steady sale and have given universal satisfaction.

Recently, we have made some improved attachments that permit of a wider range of work and open up a new field in the kind of bending the machine will accomplish.

If you do pipe bending you will find our machine an economical, simple and very efficient appliance in reducing costs and doing better work. For 2" and under.

We have a Bulletin waiting for you. Send for it now.

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Manufacturers of Cylinder Boring Bars, Portable Millers, Crank Pin Turning Machines, etc.



NORTHERN CRANES



NORTHERN "D & PL"
Electric Hoists

Our Catalogs on request

NORTHERN ENGINEERING WORKS
7 Chene St., Detroit, Mich.

ELECTRIC
EUCLID HOISTS

Let OUR Engineers Save YOUR Time

It is possible that you realize the need of modern material handling equipment but cannot spare the time or men to work out the details.

Our engineers are constantly solving these difficulties and helping manufacturers reduce expenses.

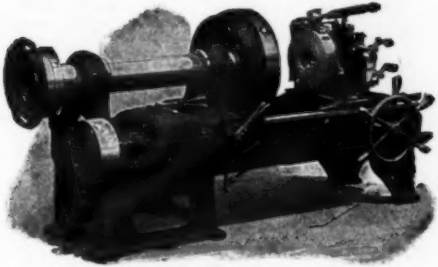
Furthermore, this service is absolutely free.

Will you take advantage of it?

The Euclid Crane & Hoist Co.
Dept. C EUCLID, OHIO, U. S. A.

There's nothing quicker —and nothing better

than the Peerless Adjusting Mechanism with which every B. & K. Machine is equipped



(No. 4 Peerless, Belt Drive. All Gears are Covered.)

BESIDES THAT you will find a number of other factors which all make for economy, viz., a gear box drive for obtaining the proper threading speeds; this eliminates all guess work in regard to the right speed for any size of pipe.

Further, dies can be changed without removing a screw, and when the die is removed, the die slot can be cleaned without removing the cover. A reaming attachment removes the burr.

We have been building and perfecting these machines for some 35 years, and we know one of our 17 styles or sizes will take care of your work to good advantage.

Tell us about your requirements in pipe threading and we will suggest a machine that will save you money

Bignall & Keeler Machine Works

Edwardsville, Illinois

The Grant Noiseless Rivet Spinner



Is Faster and Better

It rolls or swages the rivet shank and does away with the nerve racking blows and din of ordinary riveting machines. It does clean and perfect work and leaves no tool marks or dents.

Increases riveting output by 500% as compared with hand work. It can operate in the smallest and most awkward corners.

Speed—One Rivet a Second

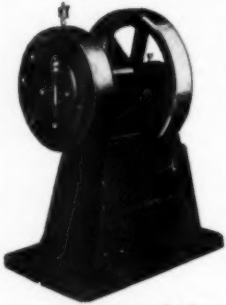
Send us one of your toughest riveting jobs and we'll demonstrate the character of the work done on the "GRANT."

Let us send you full details

The Grant Mfg. & Machine Co.

C. E. Station, Bridgeport, Conn.

"Etna" Rotary Swager



By rotary motion it delivers 3000 or more blows per minute. As compared with power hammer forging, the "Etna" often ***increases production from five to ten times.***

For pointing, tapering or reducing stock to round shape with near micrometer accuracy it is unexcelled.

Regular sizes swage ¼" to 4½" diameter. Special sizes to order within reasonable limits.

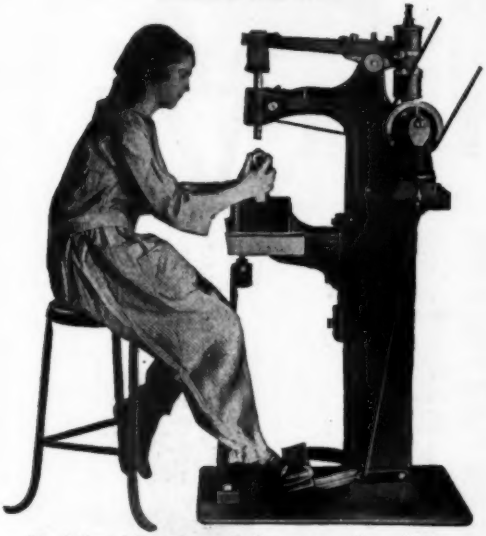
Send for our Catalog. It gives interesting details.

The Etna Manufacturing Co., TOLEDO OHIO

Riveting Revolutionized

"The Hammer with the human stroke"

Heads Rivets Cold



Heads 'em tight or loose, flush, countersunk, or finishes heads any shape desired at the rate of:—

A rivet a second, sizes up to 3-16 in.
A rivet in two seconds, sizes 1-4 to 3-8 in.
A rivet in three seconds, sizes 7-16 to 5-8 in.

Built in Eight Sizes

To handle rivets from the smallest, up to 1½" in diameter. Send us sample assembly parts with rivets or sketch of your work, and let US shoulder your riveting problems.

Send for the High Speed Hammer Book

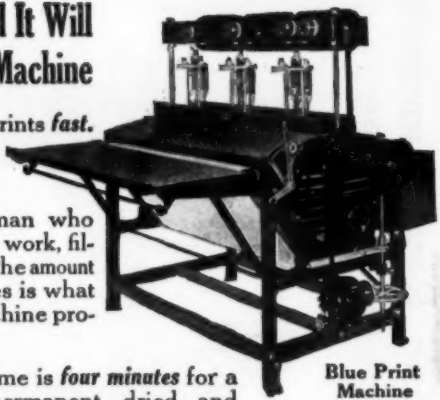
Department 13

The High Speed Hammer Co., Inc.

Rochester, New York

Figure the Labor Cost and You'll Find It Will Pay to Install a Paragon Blue Printing Machine

Paragon Machines make excellent blue prints ***fast.*** That's why they are profitable. Even though you have only a limited quantity of blue prints to make, this machine pays; it quickly releases the man who runs it for other work, filing, etc.—and the amount of labor it saves is what makes any machine profitable.



Blue Print Machine



Print Drying Machine

Paragon time is ***four minutes*** for a good, clear, permanent, dried and ironed blue print—ready for use.

Ask for catalog Y and more details

PARAGON MACHINE COMPANY, ROCHESTER, N. Y.



Gets away with it

?

The most difficult and cutting dusts, and saves money in the doing

"Rarefied" Dust Collectors

collect ***all*** the dust heavier than air, with a suction that never varies. And the material collected is discharged ***automatically.***

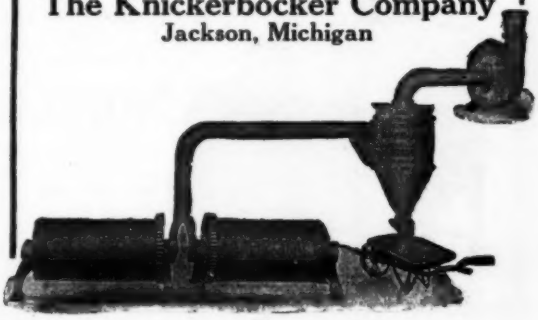
It operates on the "rarefied" or partial vacuum principle. There's no filling up of cloth or screens, no cutting out of fan, and no cleaning out by hand.

There's usually a substantial saving in power. One firm is now doing with 20 electric h. p. what formerly took 45 h. p. It economizes in more than one way.

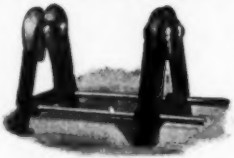
Our interesting Booklet gives full details as to "how" and "why." Write for a copy

The Knickerbocker Company

Jackson, Michigan



Improved Anderson Balancing Ways



Invaluable for balancing pulleys, gin brushes, turbine rotars, crank shafts, polishing wheels, fly wheels, etc.

Chilled iron rotation discs are ground true on face and perfectly balanced—running in specially designed ball bearings. Need no adjusting.

"Swing"	20"	40"	60"	72"	96"
Greatest distance between standards	20"	38"	38"	66"	88"
Capacity in lbs.	1000	2000	2000	5000	10000
Approx. shipping weight	45	90	150	350	650
Code	Bend	Bid	Bis	Bib	Ben

It will pay you to investigate. Want particulars?

Anderson Bros. Mfg. Co.

1915 Kishwaukee St., Rockford, Ill.



The WICKES BLUE PRINT SYSTEM

—is today being adopted by the WORLD'S largest industries.

WHY?

Send us a request and we will tell you

Wickes Bros.

1802 Water St., Saginaw, Mich.

Builders of Heavy Machinery

Washing Metals by Machine



With a Crescent you can place two men in more productive work

WHY waste hard-to-get, unskilled labor in such a profitless task as scrubbing metal parts when a Crescent Metal Parts Washer and one operator can do a more complete and thorough job?

The Crescent is a compact machine, electrically operated, into which a workman slides a durable, specially designed rack filled with metal parts. Turn a handle and revolving arms above and below the rack send powerful, swirling jets of hot, cleaning solution into every corner, crevice and hollow, inside and out, stripping each part entirely of its grease.

Though the water force is tremendous, it will neither mar nor blunt the finest metal edge—so the Gillette Safety Razor Company and others have found.

Write us for full details on the Crescent. Let us show you what the Crescent has accomplished in time and labor-saving in some of America's largest metal working plants.

CRESCENT WASHING MACHINE COMPANY
81 Beechwood Ave., New Rochelle, N. Y.

Crescent Metal Parts Washing Machine

Only the Crescent has the Double Revolving Wash



A Boon to Mechanics

LOWAY

Size Blocks

The low price at which these Size Blocks are offered permits of their being checked out freely from the tool crib to the workmen. They're invaluable for laying out or setting up jobs for bench or machine. Made accurately of high grade material. Our lettering system, with reference table, greatly enhances their utility.

Get the "Loway" habit. Full details gladly sent.

A. F. WAY CO., Inc., Hartford, Conn.
Export Department, 77 Broad St., New York City
Makers of "LOWAY" Sine Bar and Sine Square

A Boon to the Tool Room

Herlth Adjustable Parallels



Made of specially prepared steel, hardened, ground, lapped and tested for accuracy. Surfaces are guaranteed parallel and are fully dependable in all combinations.

Indispensable in gauging slots and setting all kinds of hollow gauges—particularly where odd sizes are required.

Let us help you out on your gauging problems

O. B. Herlth Mfg. Co.
32 Union Place
Hartford, Conn.

Beats Micrometer Accuracy

And Is 5 to 10 Times as Fast



Standard Equipment in big auto plants

The American Amplifying Gauge

is always ready, is always accurate—even in the hands of unskilled help,—and enables your inspectors to handle 5 to 10 times as much work.

When used in the Grinding Dept. it instantly shows the operators how much any piece is "under" or "over," and helps to create the confidence that enables every man to produce a maximum output with a minimum of rejections.

The "American" is a permanent tool, being self-compensating for wear, and makes practical and easy the "Limit System."

Write us and we will explain the advantages and economies. Our experience is at your service.

Manufactured By

THE AMERICAN GAUGE COMPANY

And Sold Exclusively Through

PERRY-DAYTON CO., DAYTON, OHIO



Hartford Taper Gage

Is Unusually Handy

This gage is designed to meet both manufacturing and tool room requirements. It sets on the bench at machinist's elbow and is adjustable to the exact height of his line of vision. **For saving time and insuring absolute accuracy in gauging tapers it is simply indispensable.** Much more preferable than ring gages.

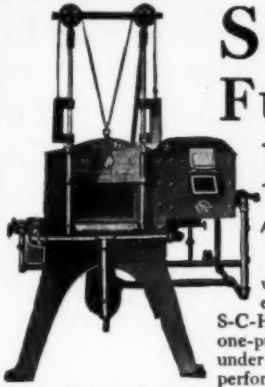
Gage plates, hardened and ground, are set to master plug gage. Capacity up to No. 14 B. & S. Taper.

Why not make its acquaintance?

Hartford Special Machinery Co.
285 Homestead Ave., Hartford, Conn.

Machine Tool Makers

should investigate carefully the facilities offered by **Hitchcock's Machine Tool List** for reaching this trade in all parts of the country. Its circulation is specialized to completely cover *every line of manufacture* in which machine tools are used—as well as all railroad and other tool-using shops—with a thoroughness and effectiveness not equalled by any other advertising medium.



S-C-H Furnace No. 5-A

THERE has probably never been a furnace designed with so wide a range of efficient usefulness as S-C-H No. 5-A. It is not a one-purpose furnace, that can, under pressure, be forced to perform certain other operations. It is so designed that it can successfully be used for the following seven purposes: (1) Annealing, (2) Case-hardening, (3) Dressing tools, (4) Hardening tools, (5) Tempering, (6) Hardening in lead or potassium cyanide, (7) Melting babbitt and soft metals.

The two ovens and melting pot may be used at the same time and three different temperatures maintained. It may be equipped for either oil or gas fuel.

Catalog 12-H gives a complete description of the S-C-H line of 75 heat-treating furnaces. Copy sent on request.

THE STRONG, CARLISLE & HAMMOND COMPANY

CLEVELAND, OHIO

Branches:

Boston New York Chicago Philadelphia Detroit

SCH INDUSTRIAL FURNACES

Tung - Stel - Bath

A quenching medium for hardening Tungsten or High Speed steels composed of scientifically prepared chemicals in lump form.

This material when placed in an iron pot and heated will melt at a very low temperature.

High Speed steel may be heated to the maximum temperatures and quenched in Tung-Stel-Bath, primarily heated to a temperature as high as eleven hundred degrees Fahr.

ADVANTAGES ATTAINED BY THE USE OF TUNG-STEL-BATH:-

Maximum hardness and toughness.
Eliminates the necessity of drawing the temper in a great many instances.
Obviates the necessity of sand blasting entirely.
Prevents cracks due to hardening strains.
No more oxidization.
No more oil carbon deposit.
Tools quenched in Tung-Stel-Bath are as clean after hardening as they were before being placed in the fire.

Write today for full information.

Bennett Metal Treating Company
Elmwood, Connecticut

Case-Hardo

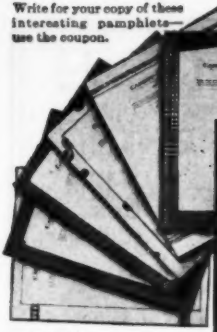
Affords Quality Case Hardening

It does all that cyanide does—***only better***—and throws off no poisonous fumes. Gives quick results. Produces a deep glass-hard surface. Requires less heat and is more economical to use than other compounds. Leaves an attractive "mottled" effect on polished steel. Used with great success for several years.

Made Only By

The Thos. Buchanan Company
29 W. 3rd St., Cincinnati, Ohio
Established in 1886

Write for your copy of these interesting pamphlets—use the coupon.



Check items you are interested in:
☐ Floor Drills ☐ Forges ☐ Wall or Post Drills
☐ Accessories Equipment ☐ Grinders and Combined Machine ☐ Shapers, Punchers, Shears, Miscellaneous

Name .....

Address .....

Canedy-Otto Forges

have a world-wide reputation for strength, simplicity, economy and long service. They are forges designed by men who know your needs and built by men who have acquired unusual skill in a plant that has dominated the industry for 30 years.

Canedy-Otto Equipment

—famous for this quality of in-built service and a certain "handiness" that is appreciated by the man at the bench, whose efficiency and productiveness are increased by the use of these fine tools.

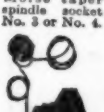
Canedy-Otto Mfg. Company
Chicago Heights, Ill.
Dept. HMT



No. 16 Power Drill
20 inch with back gear; power feed automatic stop. Morse taper spindle socket No. 3 or No. 4.



No. 16 Post Drill
Hand lever feed; positive self feed; adjustable table. Bores 0 to 1¼ in. to center of 24-in. circle



No. 8 Blower
Electric driven; dust-proof automatic lubrication; seven speed switch.



No. 4 Grinder
Wheel guards; tight-and-loose pulleys; with or without rests as specified.



Combination Burning-in and Running-in Machine
Performs both operations at one time; a great labor and time saver.



CASEITE

(For CYANIDE)

CASE HARDENING

POWDERED **LUMP**

Steel Treating Supplies

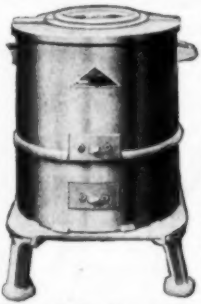
Bohnite (Carbonizing Compound).
Caseite.
Pots and Boxes (Steel and Alloy).
Scleroscope (For testing Hardness).
Enamelite (Selective Hardening).
Cleancoat (For lead baths).
Prestometer (Liquid Micrometer).
Bone.

Give us a trial.

BELL & GOSSETT CO.
117 N. Dearborn St., Chicago

The Utmost in Hardening

"Triad" 3-Purpose Furnace



(1) Hardening in Lead Bath.

(2) Hardening in Semi-Muffle Furnace.

(3) Forging in Combustion Section.

The perfect combustion not only saves fuel costs but gives you the above three different operations at one time—ALL from one oil or gas burner. The lead pot is never oxidized—lasts for months. The position of pot insures uniform heating.

Offers perfect hardening conditions in record time at rock-bottom costs.

Send for Catalog No. 5

The W. R. Bennett Co., P. O. Drawer X Elmwood, Conn.



Means Perfect Case Hardening

F—**or example,** it gives better results than cyanide.

E—**fficiency**—for all around merit it's unrivalled.

R—**ailroads,** machine shops, automobile makers specify it.

R—**eliable,** giving a uniform, deep, glass hard surface.

O—**ffers** maximum safety, economy and service.

C—**arbonizes** at a lower temperature.

A—**NON-POISONOUS COMPOUND.**

S—**cientifically** prepared—does not deteriorate.

E—**conomical**—saves fuel, metal, and goes further.

Grade M,—used in furnace like cyanide.
Grade S,—sprinkled on red hot steel or iron.

Write us about your heat-treating problems

C. G. Buchanan Chemical Co.

Cincinnati, Ohio

Ex-Service Men Should Reinstate Their War Insurance

A new law just passed by Congress makes much more liberal provisions under all Government Life Insurance Policies, including one for the payment of a lump sum on the death of the insured.

Men who have allowed their government policies to lapse, should obtain from this Bureau full information as to their rights under the law, and the benefits to be derived from taking advantage of the new options.

Write for circular and blanks

Insurance Division

Bureau of

War Risk Insurance

Washington, D. C.

"Whitney" Hand Miller

THOUSANDS IN USE



No other type of Hand Miller equals the "WHITNEY" for high production on interchangeable work.

Prompt Deliveries

The Whitney Mfg. Co., - Hartford, Conn.

Chains—Keys and Cutters—Hand Milling Machines

Just The Machine



for those light cuts on details for Fire-arms, Sewing Machines, Typewriters, Bicycles, Electrical work, and a thousand and one other details used in the manufacture of the various products of the manufacturing world.

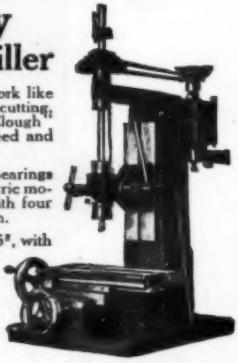
Send for descriptive circular

The Carter & Hakes Machine Co.

West Winsted, Conn., U. S. A.

AGENTS—for New England and New York, Hill, Clarke & Co.
WESTERN AGENTS—Marshall & Huschart Machinery Co., Chicago, St. Louis, Indianapolis.

A Quality High Speed Miller



For especially fine, precise work like small die sinking, steel letter cutting, pattern and tool work, the "Clough" offers the utmost accuracy, speed and economy.

The spindle running in ball bearings eliminates chatter. It has electric motor drive from lamp socket with four speeds from 500 to 3000 r. p. m.

Weight 280 lbs. Table is 12"x5", with ⅝" "T" slot thru center, having 10" lengthwise and 5" crosswise motion.

Why not have us send descriptive circular and price?

R. M. CLOUGH, Meriden, Conn.

Convenience Multiplied

means

Shop Costs Minimized



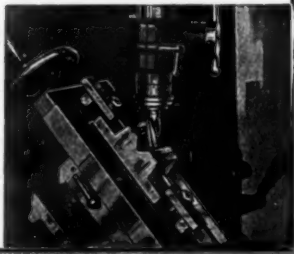
Knight Milling and Drilling Machines

embody so many conveniences that they make the most difficult machining jobs comparatively easy. They mill, bore and drill at one setting of the work, and enable you to save much valuable time in both tool room and shop. They have no equal for quick and accurate work on dies, jigs, metal patterns, etc. One of the four sizes is sure to fit your needs.

W. B. Knight Machinery Co.

3920 W. Pine St., St. Louis, Mo.

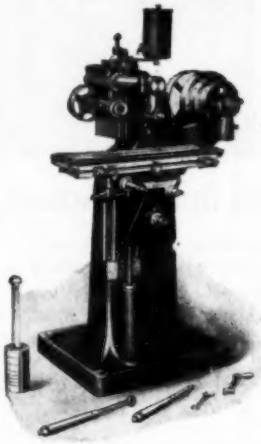
Send for our Booklet which gives many practical pointers for tool room and shop



The Hand and Weight Feed

No. 1 U. S. Improved Miller

Offers Unequalled Service



It saves wasting power and labor by doing milling jobs at less cost than is possible on large, heavy duty millers.

Specially good for rapid output of small duplicate parts.

It has unusual adaptability and great range with more power than any other miller of like type, hence its unrivalled merits for quick and accurate production. Vertical and horizontal feeds being independent, work can be held close to table so that miller may be used as a profiler. Vertical feed is separate from table and the head is accurately counter-balanced, enabling light milling operations on long and heavy pieces to be performed without breaking cutters. Table is adjusted by hand lever and crank feed with rack and pinion. Automatic feed secured by weight attachments. Its distinctive merits will well repay your careful investigation.

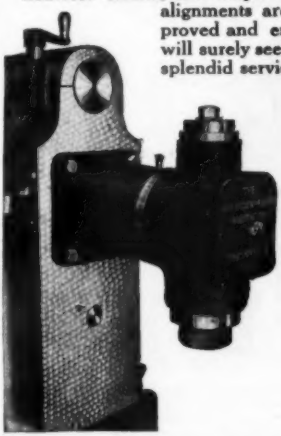
Full details on request

The United States Machine Tool Co.

Cincinnati, Ohio, U. S. A.

AMERICAN UNIVERSAL BACK GEARED MILLER

Ours is a top-quality, massive Miller, easily operated and dependable. It stands up under the heaviest strains, has ample bearings, and all alignments are true. For improved and enlarged output it will surely see you through by its splendid service.



Swivels in a full circle and is graduated in degrees.

Distance from column, 10½".

Height from Table 11½".

Swiveling Vertical Milling Attachment

This Milling Attachment swivels in a complete circle, is graduated in degrees, and is easily applied to column for all kinds of vertical milling. The face of all columns is drilled and tapped to receive attachment at any time. Greatly extends the range of the Miller's capacity.

Get our Illustrated Folder for the complete description

The American Milling Machine Co.

Cincinnati, Ohio, U. S. A.

Save Money—

On Your Drilling Costs

The U. S. PATENTED Adjustable Multiple Spindle Drill Head Saves Both Time and Labor



Our Heads are Fitted to the drill press on which they are to be used

The U. S. Drill Head affords a double adjustment of spindles, a patented feature not found in any other tool of this kind. This makes it possible to drill not only symmetrical lay-outs, but also squares, triangles, rectangles, ovals, straight line work and odd or staggered lay-outs of almost any description.

The illustration shows our No. 3 Drill Head equipped with six spindles, complete as furnished. In common with our other sizes, it may be furnished with any number of spindles from 2 to 6 and give full adjustability.

We also make our adjustable heads in special sizes, to take care of almost any kind of multiple drilling. Our heads are entirely spur gear driven, but have practically the flexibility of universal joints.

Fixed Spindle Heads of any practical type are a specialty with us.

Send us sketches or blue prints of your work and let us quote on your requirements. You incur no obligation

The United States Drill Head Co.

Cincinnati, Ohio, U. S. A.

Instant and Accurate Adjustability

Universal Angle Plate



8"x10" Worm Adjusting—Made in Four Sizes

This modern Universal Angle Plate speeds up and improves output on any kind of machine tool. It is especially valuable for repair jobs.

It transforms Plain Grinders and Millers into Universals. With its use tapers may be ground, round or flat, and several angles may be planed, shaped or milled on one piece with accuracy. Indispensable for quick and precise die-sinking. It eliminates extra "set-ups". Swivels 360 degrees horizontally, and 90 degrees vertically.

Combines maximum utility with absolute precision, and will make many extra dollars for you and your customers.

Its patented features will repay your careful investigation. Get our folder

Boston Scale & Machine Co.

100 Ruggles Street, Roxbury, Mass.

Built For Rugged Service



The Willard 10" Universal Dividing Head

Divides any job on a plain milling machine. The graduated swivel head adjustable at any angle between 10 degrees below horizontal to 10 degrees beyond vertical. Clamping device is specially rigid. Spindle has No. 10 B. & S. taper and is made of the highest grade steel, hardened and ground. Head and tailstock centers made of best tool steel. Complete index plates. All parts interchangeable. Made right or left hand. ***Full details on request.***

THE WILLARD-MIDDLETOWN MACHINE CO., Cincinnati, O.

Successors to The Willard Press & Tool Co.

Here We Are Advertising Again

BECAUSE we are now located in our own building and can now make fairly prompt deliveries. We have the most firm and rigid head clamp made. Holds over 850 lbs. 22 inches from center of swivel block. This means heavier cuts and more production.



PROMPT DELIVERY

Patent, Nov. 11, 1919
Others Pending

For Dependable Accuracy Get Dickow's

Sold by dealers. Write us today for complete description

Fred. C. Dickow, 3504-12 W. Lake St., Chicago, Ill.



Plain Index Centers Swing 10" Diam.

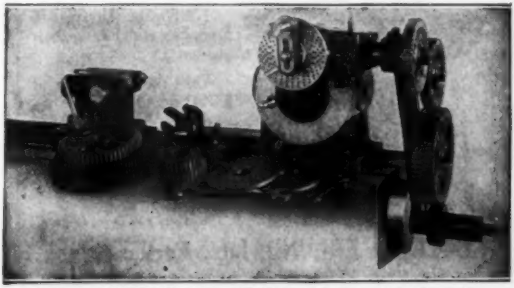
SIMMONS OF ALBANY

These Dividing Heads or Index Centers may be used on any milling machine; are well designed; materials are the finest obtainable.

The Universal Index with Spiral Cutting Attachment is a quite recent development and will be found remarkably useful in any tool-room. Let us tell you more about these accessories.

SIMMONS MACHINE CO., Inc., ALBANY, N. Y.

BRANCHES: 801 Singer Bldg., New York, 86-88 Exchange St., Buffalo, N. Y.
Albany and Buffalo Warehouses



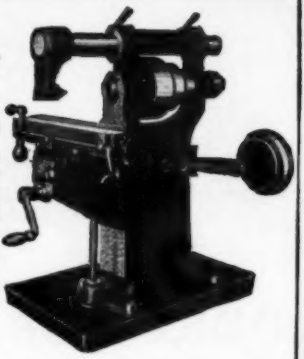
Universal Index Centers with Spiral Cutting Attachments

Burke's No. 4

Bench Miller

Power Feed

Extremely accurate and maintains permanent alignment. The greatest care is taken to thoroughly season all castings, which are carried six to eight months before the final machining. A tool that is not only made accurate, but that will stay so. It is unequalled for precision work.



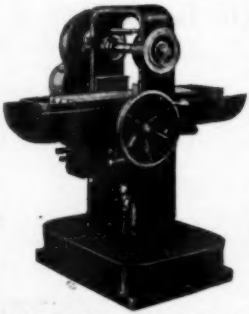
Longitudinal feed, 8¾"; traverse feed, 3¼"; vertical motion to knee, 8¾"; table surface, 3½x16".

The Burke Machine Tool Co.

297 East 16th St., Conneaut, Ohio

They Do More and Better Work

In Form and Gang Milling



The secret of the Briggs High Duty Millers' enviable reputation for utmost service lies in their power & rigidity.

They make wide cuts in hard steel with not the least chatter.

Take the full power of a 3½" double belt.

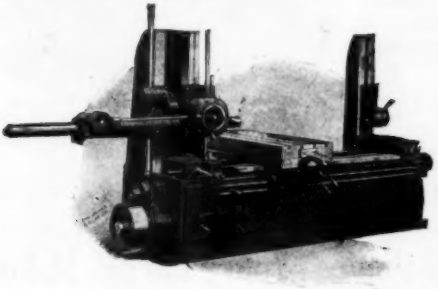
For fine tool room work or for milling steel parts for automobiles the "Briggs" is unsurpassed.

It will pay you to investigate

GOOLEY & EDLUND, Inc., Cortland, N. Y.

ANNOUNCEMENT—

We take pleasure in announcing the purchase of the business of The Carroll Foundry & Machine Co., manufacturers of gray iron castings and heavy machine work, and of The Lambert Machine & Engineering Co., builders of the Lambert Horizontal Boring, Milling and Drilling Machine. The new Company, with its complete combined equipment, is now ready to furnish specifications, prices, etc., on this excellent machine.



The Lambert Horizontal Boring, Milling and Drilling Machine

As is generally known by the trade, this is a machine of extreme simplicity, as accurate as human skill can make it, and exceptionally convenient in operation. It is equipped with two adjustable start-and-stop levers which slide along the horizontal bars—one starts, stops or reverses any feed, and the other starts or stops the bar. Has bronze bushings and all-steel gearing. Verniers are provided for making head and outer support adjustments. Arranged for motor drive on order.

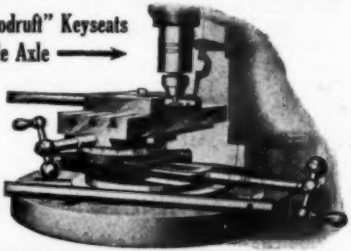
Better get in touch with us as early as possible

Carroll Foundry & Machine Tool Co.

Bucyrus, Ohio, U. S. A.

Mills On Any Drill Press

Cutting "Woodruff" Keyseats In Automobile Axle →



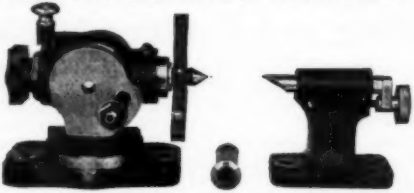
For the
Garage
Diemaker
Repair Shop
Patternmaker

The Davis Milling Attachment and Compound Table can be used on any drill press from 14 to 42-in. swing. It is equally valuable in big and small shops, as it does most of the lighter jobs as well as a large, expensive machine; cuts all kinds of keyseats perfectly. Our cylinder reamers for reboring the Ford car, and our efficient air compressor are also attractively priced. Send for circulars.

Hinckley Machine Works, HINCKLEY, ILL.

Relieves Your Large Miller

Here's a Big Economy at Small Cost

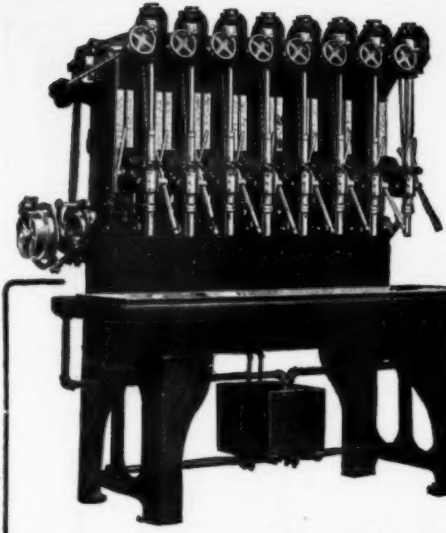


Our new Semi-Universal Dividing Head eliminates wasting power thru using heavy duty, high-priced Millers on small milling jobs. It transforms a Hand Miller into a Semi-Universal. Good for all kinds of straight milling.

Let us mail you full details and price

WHITING & COMSTOCK, 32 Union Place, HARTFORD, CONN.

Export Department, 77 Broad St., New York City



Henry & Wrights

1 to 8 Spindles, for ¾" Drills & Smaller

ASK US about their gearless power transmission with frictionless bearings and other important improvements—about our free scientific Feed and Speed Chart, the result of over two years of arduous experiment—about how and why many large plants have standardized their sensitive drilling equipment with Henry & Wrights—about how and why one or more of our 252 Varieties may be best adapted to your own use.

Ask us—that's all—we'll do the rest

The Henry & Wright Mfg. Co.

760 Windsor St., Hartford, Conn.

New York Office, 136 Cedar St.

OVER-SEAS REPRESENTATIVE

ALMACOA — ALLIED MACHINERY COMPANY OF AMERICA — ALMACOA

51 CHAMBERS ST. NEW YORK, U.S.A.

Principal Foreign Offices: Paris, Turin, Zurich, Barcelona

Well deserved popularity is a great thing. The

MUELLER RADIAL DRILL

by its all around efficiency has gained for itself the reputation—both with operator and production manager—of being a pretty good tool to have in the shop.

Why, do you suppose, do both operator and production manager think so highly of the MUELLER Radial Drill?

Surely there must be a good reason.

There is.

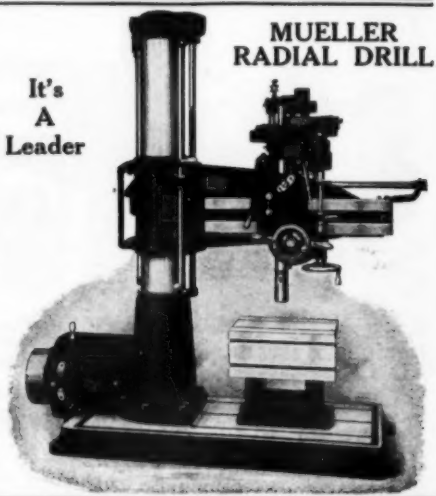
Ask

The Mueller Machine Tool Company

Radial Drills and Lathes.

ESTABLISHED 1902 **CINCINNATI, O.**

It's A Leader



The NEW Silver 20" Drill

An All Purpose Machine



SKF Ball Bearings

12-in. Spindle Traverse

Bored No. 3 Morse Taper.

This Table partly indicates the superiority of the new over the old:

	New Style	Old Style
Height	75"	68¼"
Vertical Travel of Spindle	12"	10"
Vertical Travel of Table	17½"	16"
Distance from Spindle to Base	42¾"	41⅛"
Distance from Spindle to Table	28¼"	26⅝"
Shipping Weight	860 lbs.	780 lbs.

Equally good for fine tool room work and general machine shop service. ***Both base and table planed absolutely square with the spindle.*** The 12" spindle traverse is ***unique*** in this type of drill. Specially adapted for re-boring cylinder blocks and all precise repair work.

Made in four styles: (1) Plain Lever Feed, (2) Combined Lever and Wheel Feed, (3) Power Feed and Automatic Stop, (4) Power Feed with Back Gearing and Automatic Stop.

Why not an introduction to this Quality Drill?

The Silver Manufacturing Co.

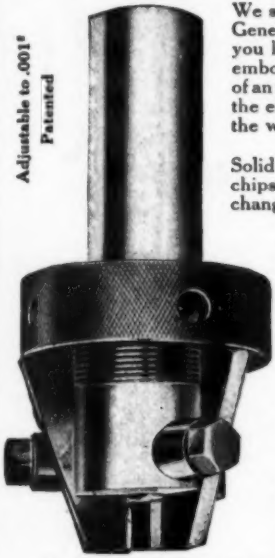
Box 295, **Salem, Ohio, U. S. A.** *Founded 1854*

LONDON PARIS BRUSSELS NEW YORK GENOA SYDNEY CAPE TOWN

Genesee Tools Guar

They Also Save Steel and Red

Genesee Hollow Mill



We say it is expensive to do without Genesee Tools, and so would you if you knew the many advantages they embody. They adjust to the 1,000th of an inch, and the fourteen sizes cover the entire range from ¼" to 2", doing the work of hundreds of solid tools.

Solid tools, as you know, clog up with chips after a few grindings, they change size and lose both efficiency and dependability. Genesees never clog and cannot change size.

Genesee Tools cut 12" to 15" a minute in steel, or to full capacity of the machines.

And kindly bear in mind that one set of blades outlasts three to five solid tools, and are replaced at small cost.

All wearing parts are case hardened. Holes drilled to allow stock to pass through tool. Fits directly into turret.

If you want tools that come within a time—write us. Our engineers wi

Genesee Manufacturing Co.,

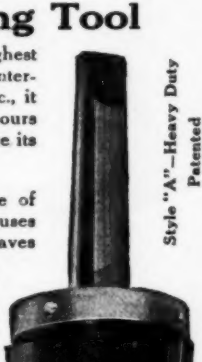
Manufacturers of Adjustable Hollow Mills, Facing Tool

ıarantee Greater Output

l Reduce Tool and Operating Costs

Genesee Facing Tool

Here's an economy tool of the highest order. For rapid and accurate counterboring, reaming, facing, forming, etc., it has no equal. A trial of a few hours in your own shop would demonstrate its superiority.



Style "A"—Heavy Duty
Patented

This powerful facing tool is made of chrome nickel steel hardened, and uses high-speed steel to its limit. It saves hundreds of dollars in steel. Can be sharpened without any special holder and quicker than any solid tool.

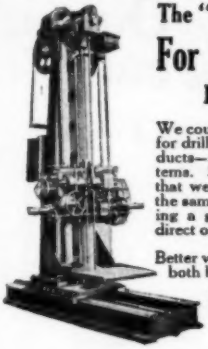
As with the tool described or the opposite page, there is no clogging and the chip space does not vary.

No special jigs or holders are required for grinding blades, which are removed and replaced without disturbing any adjustment of the machine. Genesees do more work, and naturally save money in both tool room and shop.

within a hair of being 100% efficient all the
rs will gladly make estimates on your work

Co., Inc., - Rochester, N. Y.

cing Tools, and Inserted Tooth Face and Side Milling Cutters



The "Pawling & Harnischfeger"

For Drilling and Boring

Long Bulky Parts

We could not find just the right machine for drilling and boring our principal products—cranes, hoists and monorail systems. So we built one. It worked so well that we decided to built it for others in the same position we were—we are passing a good thing along. Furnished for direct or alternating current.

Better write in and find out about it. As both builders and users, we believe we can discuss intelligently its application to your work.

And why put it off?

Pawling & Harnischfeger Company
Milwaukee, Wisconsin

Drills "Out-of-the-Way" Holes

Harris Offset Drilling Attachment



For making holes in the remotest, most difficult corners it has no rival. Invaluable for automobile, railroad and general machine shop work. It saves valuable time and gives perfect results.

Enlarged capacity now enables us to fill all orders promptly.

Special sizes and forms of this Attachment furnished for **unusual** jobs.

Why not have us mail you our Folder O. K.?

Harris Engineering Co.
Bridgeport, Connecticut

The Rockwell
20" DRILL PRESS



This low-priced drill press is of excelient design and workmanship. It is equipped with automatic feed, hand wheel and hand lever feeds.

The four-step cone drive and back gears afford a good variety of speed and feed changes. All adjustments are readily made. Capacity, 1¼-inch diameter at center of 20 inches.

This machine is ready for immediate shipment

Price $185.00—f. o. b. cars Chicago

JOSEPH T. RYERSON & SON

MACHINERY

CHICAGO ST. LOUIS DETROIT BUFFALO NEW YORK

Alert Boring and Facing Tool



"Always on the Job"

Bores clean, precise holes up to 6" deep, whether used on turret lathes, automatic screw machines or drill presses. Will face, counterbore, or cut radii as required quickly and perfectly. Eliminates the prohibitive cost of high speed drills.

We also make Ratchet Tap Wrenches, Roller Grip Arbors and Roller Grip Mandrels—all patented; High-Speed Solid Tap Wrenches and Hand Knurling Tool Holders.

Why not let us send you our Circular "H"?

Alert Tool Co., 237 N. 6th St. Philadelphia, Pa.

EASY-Lock Holder and Interchangeable Counterbore Cutter



No hammers or wedges required in changing reamers. They are invaluable for ship and bridge builders, boilermakers, etc. Also made to fit screw machines and turret lathes.

With one simple turn you lock cutter into holder—no wrenches or screws needed. Two-point drive of cutter offers double strength. Cutter, easily adjusted, can be used up to a third of its length.

Send for Illustrated Folder

Manufacturers Machine Products Co.
370 Mt. Elliott Ave., Detroit, Mich.

Lower Costs on Duplicate Parts

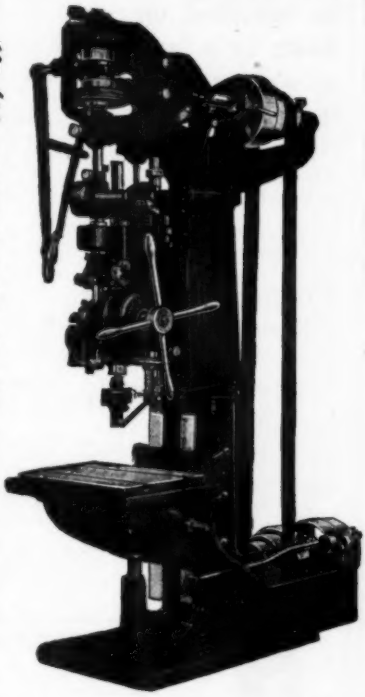
Drill, Tap, Ream and Counterbore at One Setting

To own a

Turner Turret

means that you have available an up-to-date economizer of time and labor, a machine which increases output and easily effects a big saving in shop costs.

The rotation of the turret is automatic—when the operator returns the spindle to its full height, it automatically indexes to the next spindle. This feature is not complicated, and the average man soon becomes an expert. A wide range of speeds is available. Built with 4 to 12 spindles, and to order.



Full data in Bulletin FH. *The Quint Turret is described in Bulletin QH.*

TURNER TURRET

Turner Machine Company
DANBURY, CONN. and Newark, N. J.
Incorporated with Turner, Atherton & Co., Ltd., Denton, Manchester and Stockport, England

Would you like a drill that the spindle can be operated up and down by a foot lever as well as by a hand lever?

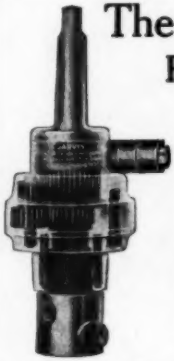


A Foot Lever is very handy when boring wood, hard rubber or hard fibre.

Send for a circular of this Drill if interested

Francis Reed Co.

43 Hammond St., Worcester, Mass.



The "Jarvis" Insures Perfect Tapping

The marked success of the Jarvis H. S. TAPPING DEVICE in numerous plants has been amply demonstrated for over six years.

The ball drive and ball reverse feature makes good tapping as easy as "falling off a log", since it never clinches, binds or stops rolling when it starts. This feature affords "velvet" action and ***eliminates the expensive item of tap breakage.***

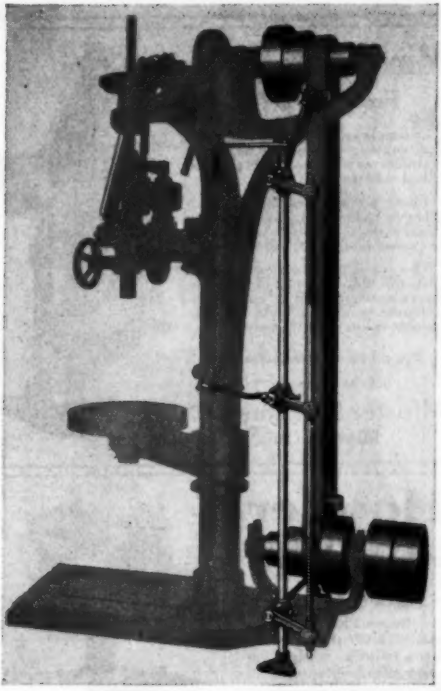
The direct ball drive insures instant reverse action in backing out tap when thread is fully cut.

We shall be glad to tell you more about this invaluable tool.

Let us send you our folder—or better still, a tool for a try-out

THE CHARLES L. JARVIS COMPANY

GILDERSLEEVE, CONN.



Instant changes of speed for drill presses increase production and reduce compensation to injured employees.

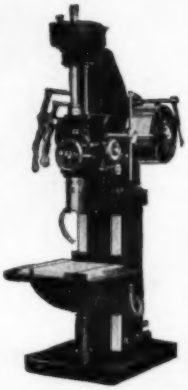
Details in Circular H-D

The Kremer-Cummins Machine Company

1833-35 East 55th St., Cleveland, Ohio

Minster Jr. Drill

For HI-DUTY



Of simple and up-to-date construction, capable of handling all kinds of drill press work from light drilling to heavy boring.

There are 6 speed and 4 feed changes, but by changing gears any speed or feed may be obtained—hence its *unusual* adaptability and efficiency.

The speed gears are enclosed in oil bath. Ball bearings throughout insure quiet running. Tapping attachment, compound table, and adjustable motor base if desired.

Why not get our Bulletin No. 30?

MACHINE TOOL DEPT.

Minster Machine Co.

Minster, Ohio

Hoosier
20" Drills



A tool of simple and rugged construction with eight speeds and three power feeds, strictly modern in every detail, fitted with all the graduated and automatic features found on high priced drills. All bearings are of the best grade of babbitt metal; gears are accurately cut and aligned.

Write for specifications of the HOOSIER line.

Hoosier Drilling Machine Co., Goshen, Ind.



Have You Ever Noticed

How Few Second-Hand

Sipp Quick-Change-Speed Drills

Are Offered For Sale?

THERE'S A REASON!

The Sipp Machine Company

Keen Street, PATERSON, N. J.

The "U-T-I-L-I-T-Y" Counterbore and Spot Facer



It eliminates broken pilots and cutters. No trouble in removing cutters from holder or with set screws coming loose. Cutter drive is simple and powerful, and the cutter is quickly and easily removed. Avoids counterbore and spot facer troubles.

The UTILITY represents the utmost in durability, quality and accuracy.

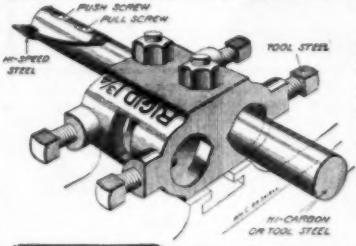
The J. C. Glenzer Company

Detroit, Mich.

New York Office: C. H. Westerberg & Co. Inc., 9-11 West Broadway

RIGID Double Reversable BORING Tool

Holder, a Double King-bolted Steel Casting, with Mac-it Screws, and ½" Liner. Four simple Elevations and 4 Compound. *Five Bars in Set.*



We make 9 Bars of 1 type, and 11 Holders of 5 types.

Shipped On Approval.

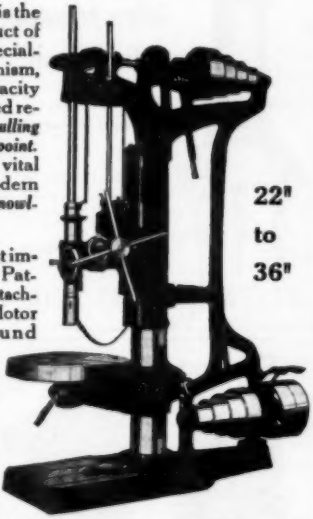
RIGID Tool Holder Co.

Washington, D. C.

"The Aurora"—

A Superior Quality Drill

The "Aurora" is the specialized product of machine tool specialists, and in mechanism, quality and capacity offers a specialized result—***maximum pulling power at the drill point.*** In this supremely vital matter—for a modern drill—it is an ***acknowledged leader.***



22" to 36"

Among its latest improvements are: Patented Tapping Attachment, Geared Motor Drive, Compound Table.

It has a massive, well-ribbed column and base; high-grade steel spindle; hardened steel feed gears running in oil; automatic trip; fool-proof table; worm wheel with automatic release.

Up-to-date equipment and low overhead enable us to offer this machine at an attractive price.

It will pay you to investigate. Write now.

The Aurora Tool Works

Aurora, Indiana, U. S. A.

Three Holes At Once

with the



Sellew Adjustable Drill Heads



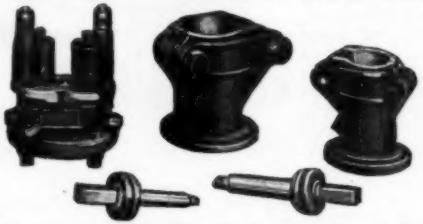
They're surely great time and money savers.

Special Heads with fixed spindles made to suit your work.

Write for details

SELLEW MACHINE TOOL CO., Pawtucket, Rhode Island

"Buhr" Drill Heads



The above cut shows the No. 02 two-spindle adjustable "Buhr" patent ball bearing drill head. Adjustable heads with from two to twelve spindles. Fixed center heads with any number of spindles.

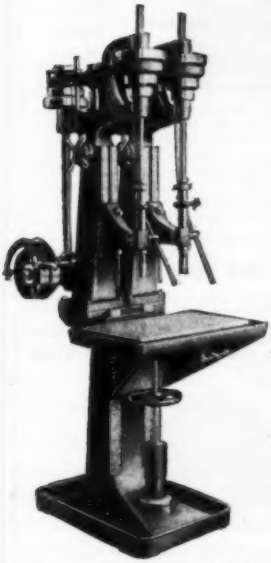
Nelson-Blanck Mfg. Company

Detroit, Mich.

New York Office, Grand Central Palace, New York, N. Y.

The Edlund—

An Improved Quick Change Sensitive Drilling Machine



The Edlund is built with from one to six spindles. Ten ball bearings used for each spindle. It is very rigid and has ample bearing surfaces.

A straight endless belt eliminates the objectionable quarter turn. Belt may be shifted from either side of machine.

High carbon steel spindle turned and ground to size, has two driving spines fitted into grooves on each side of it. These hold spindle in central position, reducing wear and friction to a minimum.

Unusual power is obtained from the large diameter of drive and cone pulleys.

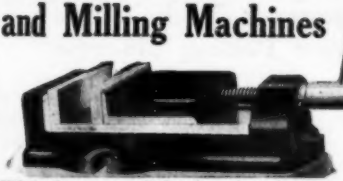
Four speed changes: 510, 816, 1573 and 2038 r. p. m.

Let us know something of your drilling output problems
We believe we can serve you to especial advantage

Edlund Machinery Company, Inc.

260 Huntington Ave., Cortland, N. Y., U. S. A.

Hoosier Vises—For Drilling and Milling Machines



Three Sizes: 3¼, 4½, 7"

While these unusually handy and sturdy vises are especially designed for holding work on drilling and milling machines, they can be used to equal advantage on planers and shapers.

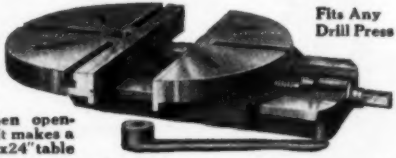
They are made of the very best materials and accurately machined. Jaws are faced with hardened steel unless otherwise specified. A milled key slot the entire length of the bottom of body insures accurate alignment on milling machine table. Flanges with bolt slots allow secure anchoring of the vise to the table.

Better have us mail you description and price list

Hoosier Drilling Machine Co., Goshen, Ind.

Two in One **Quickgrip** **Table Vise**

Fits Any Drill Press



When opened it makes a 16"x24" table

If you have a drill press vise, it takes time to hunt it up and bolt to table. Why not have the two combined, always ready for use?

If you haven't a drill press vise, better get the "Quickgrip," which is both vise and table. Clamps work quickly and securely; has interchangeable jaws; 1¼" screw runs in bronze nut. Saves time, drills and material, and increases drilling capacity.

A handy helper in any shop. Want description and price?

SPRAGUE-HAYES MANUFACTURING COMPANY

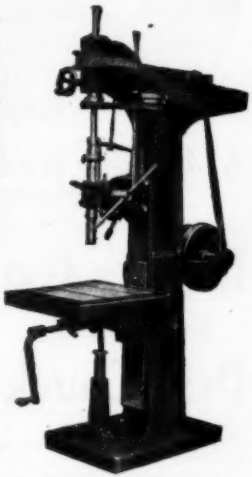
44 E. Larned St., Detroit, Mich.

Avey No. 3

Heavy Duty Ball Bearing Drilling Machine

Designed for quantity and quality production on all classes of drilling. Much higher speeds can be obtained than ordinarily used for holes from ¾ in. to 1⅛ in., which, combined with finer feeds, make a production increase of from 25 to 50% possible.

Built in combinations of one to six spindles with plain hand or power feed. Ball bearings throughout.



Our No. 3 machine provides maximum speeds for work up to 1⅛"

Write for Bulletin containing details

The Avey Drilling Machine Co.

Cincinnati, Ohio

Coventry Chucks



The strongest on the American market as to gripping power, protection from breakage and freedom from harmful wear. All working parts enclosed to keep out dirt and keep the lubricant in. Made in sizes of 9 to 25-inch diameter.

Write for Bulletin No. 201

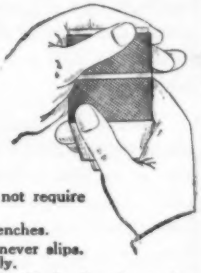
ALFRED HERBERT Ltd.

54 Dey Street, New York 14

NeBaCo

Self-Tightening

Drill Chuck



Roller bearing.

Entirely self-contained. Does not require an arbor to operate.

Self-tightening. No keys or wrenches.

Quickest and easiest grip. It never slips. Jaws grip positively and release easily.

The "NeBaCo" is the only chuck of its kind on the market. It will enable you to use a hand operated chuck on electric drills, and on sensitive or high-speed drill presses. Many manufacturers of electric drills have adopted it as a regular equipment.

Write today for details of the "NeBaCo" and "Eclipse" Chucks

Nielsen-Barton Chuck Co., 106 S. Jefferson St. CHICAGO, ILL.

Also makers of ARBORS for all kinds of Chucks

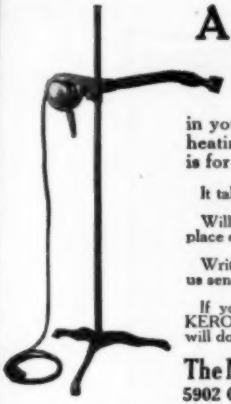
Jacobs Chucks

The use of a product in ever widening circles is incontrovertible evidence in favor of the quality of both product and service. The increasing demand for Jacobs Chucks is a case in point.



The Jacobs Mfg. Co.

Hartford ~ Connecticut.



A Gas-Electric Blow Torch

in your shop is just as useful for heating applications, as a lathe is for general machine work.

It takes only a few minutes to install.

Will replace your forge, and take the place of high priced furnace equipment.

Write for a descriptive folder or have us send a torch for trial in your shop.

If you have no gas, ask about our KEROSENE FLAMEBLAST torch; it will do the same work.

The North American Mfg. Co.
5902 Carnegie Av., Cleveland, Ohio

The "Champion" Boring Tool

Patented



Tool consists of holder, one bar with inserted cutter with straight and 45 degree adjustment, one cutter and wrench.

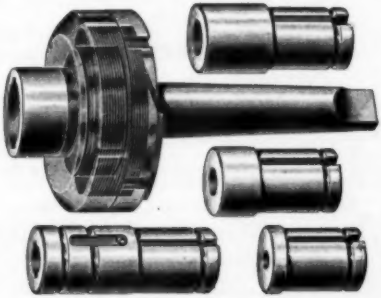
Invaluable for improving and speeding up production.

Write for Catalog No. 18, illustrating the "Champion" Line of Tool Stands and other shop furniture, Tool Holders, Expanding Mandrels, Power Hack Saws, Wet Tool Grinders, Emery Wheel Dressers and Cutters, Vises, etc.

Western Tool & Mfg. Co., Springfield, Ohio

The Safety Drill and Tap Holder

Eliminates Tap Breakage



Made in Four Sizes, 0 to 2¼"

This unusually efficient Drill and Tap Holder is friction driven. Tap breakage is eliminated because spindle instantly revolves under undue strain. It allows tapping to the bottom.

It is simple in construction and easy to operate. You can change from drill to tap, or tap to drill, without stopping spindle. This speeds up output, saves time and reduces cost.

Why stick to old, "stick-in-the-mud" tapping methods and throw good money away? The "SAFETY" points the way to the wiser course.

A try-out will quickly demonstrate to you its striking merits

The Beaman & Smith Co.

Providence, Rhode Island

"Speed and Quality"

The COGS DRILL

Combination Centredrill and Reamer



PATENTED
Dec.-2-1919

It puts thru your drilling and reaming jobs in *record* time and makes clean, finished holes.

It wins out because it saves the time ordinarily required to take out drill and put in the reamer. This advantage is further amply reinforced by the quality of steel, accurate machining, and expert tempering. Drill chip chutes don't clog.

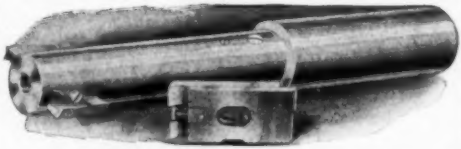
Send for a trial shipment and Catalog.

The Cogsdill Manufacturing Company

Detroit, Michigan

"A Perfect Tool for Perfect Work"

MADISON Boring Cutters and Bars



The Madison replaces reamers, does much better work and insures absolutely straight holes any size desired. It can be sharpened and set to within .00025" in five minutes by anyone acquainted with gauges and micrometers.

U. S. Government and leading Automobile Corporations—Cadillac, Lincoln, etc.,—are among its satisfied users.

Made in 45 sizes. May we send details?

MADISON MANUFACTURING CO., - Muskegon, Mich.

Model "E-50"
Sensitive Bench Drill Press

This 2-speed, direct motor drive, high-speed ball bearing drill is especially designed to care for all work, ranging from the smallest to a ¼" hole.

Standard speeds 2,100 and 6,000 R. P. M.

Main spindle is heat treated and ground to size; it is guided through a quill with support at each end in an annular ball bearing.

End thrust is taken up by an end thrust ball bearing under feed arm.

A quick adjustable table has a working surface 5½"x5", and will take work up to 4⅞" in height.

Surface of table is ground to insure accuracy.

Table has a self-cleaning taper, which keeps the precisely ground main column free from chips, and serves also as a guard to prevent injury to column.

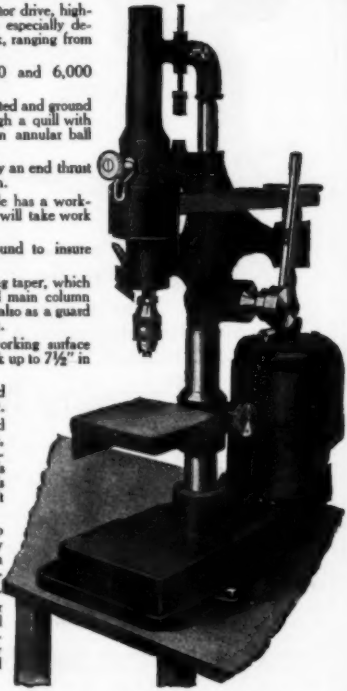
Base has a ground working surface 4"x6", and will take work up to 7½" in height.

Base has oil groove and self-cleaning column support.

Your attention is called to another special feature, which is a spindle lock enabling quick changes of drills without the operator's hands coming in contact with belt or pulleys.

An idler pulley takes up any belt stretch which may occur in the endless woven canvas belt, without impairing sensitiveness of machine.

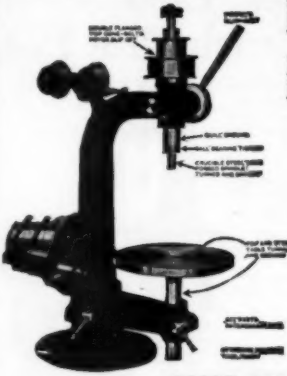
Front pulley and upper part of spindle are guarded by a semi-tubular guard insuring safety. Machine may be operated either by hand or foot control.



Height over all	24"	Spindle feed	2¼"
Base	7½"x18"	Weight	62 lbs.
Diameter of spindle	7/16"	Will drill to center of a 6" circle.	

The High Speed Hammer Co., Inc.

Dept. 14 **Rochester, N. Y.**



Burke Quality

Excels on Fine Points

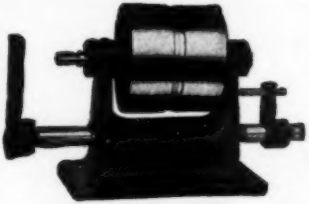
Machines of **Burke Quality** are never built with any name cast on the frame but our own—

BURKE
CONNEAUT
U. S. A.

PRICE, $28

Also Furnished Motor Driven

Burke Tapping Machine



Pin Clutch Drive

¼" capacity, $25.

Friction Drive

3/16"	capacity,	$25.
3/8"	"	45.
5/8"	"	60.

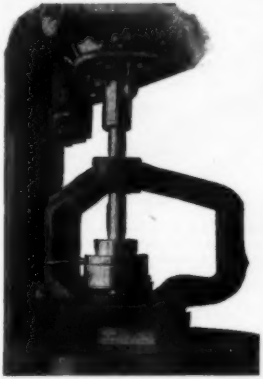
Burke Tapping Machines are complete in themselves. The prices shown are less than are usually asked for various tapping attachments, which not only tie up the production of a high-priced machine but cannot compete with Burke Tappers in output.

Write for full details on these economy Tappers

The Burke Machine Tool Co.

297 East 16th St., Conneaut, Ohio

Spot-Facing on a Drill Press



A *Mummert-Dixon* Facing Head makes this difficult task as easy as drilling a hole

It often is necessary to face a spot or boss and drill a hole in it, which is not uncommonly accomplished by using two machines. This requires two settings and nice workmanship to make a good job.

With the Mummert-Dixon Facing Head, you use only one machine, your drill press, and one setting for both operations. Isn't that quicker, and cheaper, and better?

That is only one way in which these facing heads save time and cost. They operate on lathes, milling machines, boring machines, any tool that has a spindle or will drive a bar, doing many things easily and quickly that by other methods are difficult and slow.

We have illustrations of different applications of these facing heads which we know will interest you. May we have your permission to send them?

Mummert-Dixon Co.

HANOVER, PA.

Victor Collapsible Taps



Great Time Savers

Regular sizes up to 6"; larger sizes to order

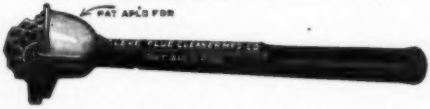
Victor Adjustable Hand Taps—unlike solid taps—never become undersized, because the chasers can be adjusted as required. Adjustments up to 1/32" can also be made for variations in size of thread. Size required is obtained by an adjusting screw. Why not let us introduce you to this great producer?

Glad to mail you full description

VICTOR TOOL COMPANY, - WAYNESBORO, PA.

Duplex Improved Patented Wheel Dresser

Keeps Grinding Wheels in Good Shape



When grinding wheels get warped, hollow or "bumpy," wasted power and equipment is the result. The DUPLEX saves all that, and keeps wheels true, in perfect grinding condition, and fully productive.

Patented aluminum hood protects operator while wheel is being dressed. Two kinds of cutters.

We send them on approval—sure. Send postal.

Cleveland Flue Cleaner Mfg. Co.

321 Frankfort Ave., N. W., Cleveland, Ohio

Thor

Portable Electric Drills and Grinders

Equipped with a Universal Motor for Direct or Alternating Current, or with Motor Wound for Direct Current only, 110-220 volt.

No. 01



Send for Circular

½-inch Drilling Capacity

Agents Wanted

For Drilling Reaming and Wood Boring

Jacobs Chucks used as regular equipment

Independent Pneumatic Tool Company

Chicago, New York, Philadelphia, Pittsburgh, Cleveland, Boston, Detroit, St. Louis, San Francisco, Birmingham, Montreal, Toronto

"Ampco Tools are Good Tools"

SHORT SET BRIDGE REAMER



MANUFACTURERS OF

REAMERS, 3 LIP DRILLS, CUTTERS
END MILLS, SPECIAL TOOLS

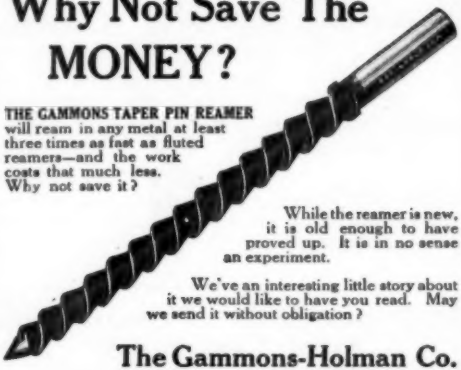
American Machine Products Co.

Detroit, Mich., U. S. A.

New Catalog on Request

Why Not Save The MONEY?

THE GAMMONS TAPER PIN REAMER will ream in any metal at least three times as fast as fluted reamers—and the work costs that much less. Why not save it?



While the reamer is new, it is old enough to have proved up. It is in no sense an experiment.

We've an interesting little story about it we would like to have you read. May we send it without obligation?

The Gammons-Holman Co.

Dept. H., Manchester, Conn.

THE CASHMAN

Adjustable Shell Reamer

Affords a BIG REDUCTION in Reaming Costs



Outlasts 15 to 20 Solid Reamers

It has so many advantages, which are plainly evident, that the wonder is that anyone should use solid reamers at all.

Only three parts besides the blades—all interchangeable—making it compact and sturdy.

Stands hard usage in the hardest metals, and cannot change its size in the hole. So constructed that there is no play whatever.

The blades are heavy, and can be ***renewed*** and ***used their entire length of adjustment.***

We invite you to thoroughly test its keen-cutting and cost-reducing qualities in your own shop. The greater profit is yours; the risk is all ours.

Write for description, price-list and trial

Cashman Tool Company

Waynesboro, Pa.

Service You Can Depend On

Hollow Bored Forgings and Steel Shafts



If you require ***Lathe Spindles, Piston Rods, Rams, Clutch Shafts, Steel Pipes,*** etc., we can serve you to advantage. These lines are right for price, quality and early delivery.

Send us your blueprints for quotations

American Hollow Boring Co.
Erie, Penna.

Dies, Tools, Jigs, Gauges, Special Machinery, Experimental Work *and* **Manufacturing**

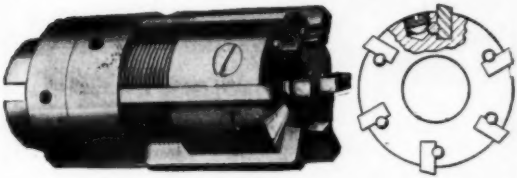
Send us your Specifications

Screw Machine Products

GEO. H. AINGE TOOL, DIE AND MACHINE WORKS
SPRINGFIELD, OHIO

FOR STANDARD HOLES

Standardize On



McCROSKY-SUPER
ADJUSTABLE REAMERS

They are standard in material, workmanship and results. Extra blades are standard. A complete stock of all sizes can be maintained at small cost. They are quickly inserted and fully renew the life of the reamer. Remember, one McCrosky-Super with one set of blades can ream more holes with greater accuracy than a dozen solid reamers.

McCrosky Catalog No. 7 has full details
Send for a copy today

McCrosky Tool Corporation
Meadville, Pa., U. S. A.

Branches in Detroit, Chicago, Cleveland, Philadelphia
Agencies in all other principal cities

Export Agents: Benjamin Whittaker Inc., 21 State St., New York

McCrosky
COST CUTTING TOOLS

Broken Taps — Much Wasted Time

Walton Tap Extractor



Prevents This Waste

It is estimated that 90% of all taps break. The "Walton" cuts out the time and labor wasted in taking out broken taps. With it a boy takes out the broken piece in a few minutes without damaging threads. *How's this for utility?*

Why not have us send you one for a try-out?

THE WALTON CO., Hartford, Conn.



The "Woodstock"

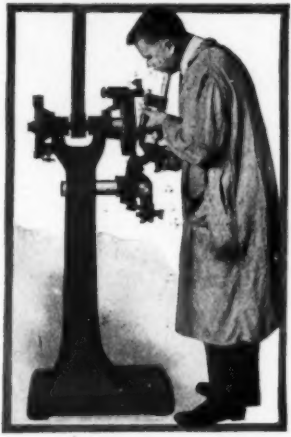
Eliminates Tap Breakage

Woodstock Safety Tapping Chucks have had unusual success for over seven years in tapping tough metals, blind tapping and bottom tapping in shallow holes. They cut either full length, or where threads are only one or two deep.

They positively eliminate tap breakage. The instant tap binds or reaches bottom the friction drive is automatically released.

They save taps, time and money
Why not have one sent on approval?

Peter Bros. Mfg. Co., 115 Railroad St., ALGONQUIN, ILL.



If You Use Taps—

and would like to eliminate the breakage arising from imperfect grinding—would like to save the waste which results from excessive and too frequent grinding—would like to have your taps cut with about half the power usually required—would like to save half the time now spent in tap grinding—would like to have your taps stay sharp over twice as long—would like to eliminate torn and stripped threads in your tapped holes and have the threads just right—in short, if you would like to get rid of your tap troubles and most of your tap cost,

Send for your copy of the Grand Rapids Grinder Book

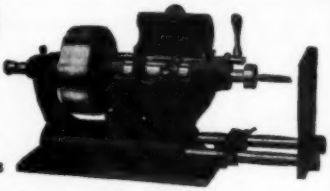
Grand Rapids Grinding Machine Co.

17 Ottawa Ave., N. W.

Grand Rapids, Michigan, U. S. A.

Workwell Tapping Machine

Built for Service
Has Many Fine Points



2 bar slide to hold work straight with tap.

Steel gears 2" diameter, enclosed and running in oil.

Extra large hardened clutch. One loose pulley with hardened clutch. Non-slip tap holders. Die holder for threading outside threads. Stop adjustment for any depth of thread.

MADE IN TWO SIZES.

Type B 2 for threads to ¼" diameter Type C 2 for threads to ½" diameter

Give it a trial. Manufactured by

Workwell Engineering & Mfg. Co.

Dept. 2 4143-45-47 W. Kinzie St., Chicago, Ill.

Handy—Sensitive—Efficient

Bench Tapping Machines



Portable Electric Friction Driven

Sizes 0 to ¼"

The "B-T" is the most simple, durable, complete, compact and productive Tapping Machine on the market. Cone friction mechanism operates it. Spindle automatic adjustment makes a very sensitive drive. This eliminates sudden strain on tap when reversing. Just set machine on bench where required, attach to lamp socket and go ahead. Net weight with motor, 65 lbs.

Let us send you full specifications

Bicknell-Thomas Company

90 Wells Street, Greenfield, Mass.

Murchey Patent Automatic COLLAPSING TAPS



We who make these tools know best their exceptional productive capacity. So confident are we of their ability to meet all possible tapping requirements within their range, we'll send you on approval the tools best adapted for your own special work—*at our risk and expense.*

They effect a saving of from 50 to 75%. Many years of unusual success stand back of them. They increase both quality and quantity of thread-cutting. Made in two types: (1) Lever Hand Handle Type for use on horizontal machines; (2) Sliding Collar Type for use on vertical machines. They combine reaming, facing and threading without having to stop and change tools—*making thereby a big saving in time and labor.* Eliminate risk of stripping threads.

Send for that trial order—ALL at our risk

Murchey Machine & Tool Co.

58 Porter Steet, Detroit, Mich.

Draw-in and Thrust Chucks

for Tool Room Lathes and Screw Machines. Look for the name "Hardinge Brothers" and write us. And did you ever ask us to make those—

Screw Machine Collets

with regular or irregular holes? We are prepared to make good deliveries. Why not try us next time? Quantities never too small or too large to interest us.

When making inquiry, kindly refer to "Chuck Department"

Hardinge Brothers, Inc.
Chicago, Ill.



COLLETS

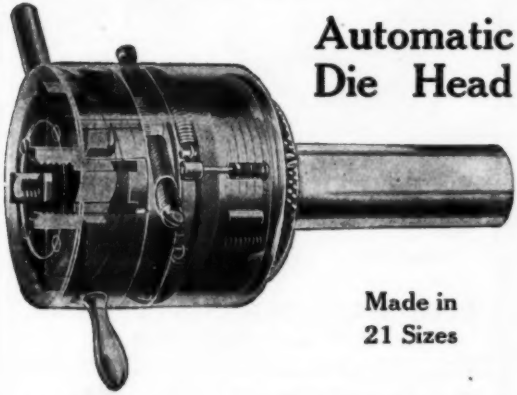
for

Lathes and Screw Machines

Any Size
Any Type
Any Quantity

Morrison Machine Products, Inc.
"Collet Specialists"
Rochester, New York

The "Rickert-Shafer" will Greatly Increase and Improve Your Thread-Cutting Output



Automatic Die Head

Made in 21 Sizes

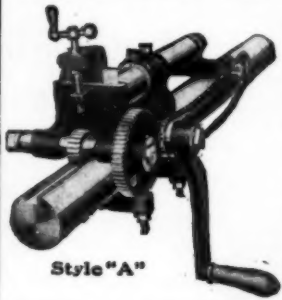
The tougher the thread cutting job the more the Rickert-Shafer Automatic Die Head appears to advantage. On all ordinary operations it is an acknowledged LEADER. However, it requires some specially difficult or awkward thread-cutting work to demonstrate its full efficiency. Here's a small sample: it can thread 70 pipe plugs per hour—16 threads to the inch—***more than one a minute.*** How's that for output?

The chasers run in hardened ways. The die is carried on ***two*** locking pins instead of the usual one, and positive opening mechanism prevents the chasers sticking. The universal taper attachment cam, adjustable for any taper or length of thread, is specially useful where a variety of threads is required. It makes a mighty big cut in output costs—***also in the scrap pile.***

Test it out on your hardest proposition—
that will convince you

Rickert-Shafer Co., 1110 Cherry St., Erie, Pa.

The Bucher-Smith Keyseater



Style "A"

BUCHER SMITH
BETTER SERVICE

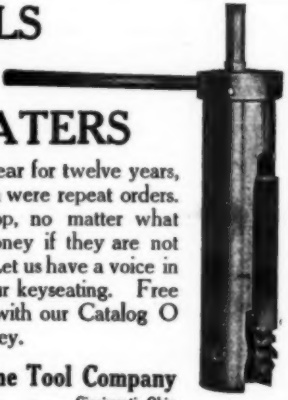
This strong, durable and efficient Portable Keyseater is easy to operate and works in close quarters.

Cuts accurate keyways in shafts from 1¾" to 5" and ¼" to 1¼" wide, 12" long, without resetting.

Write for Catalog and prices of our hand-power and electric Portable Keyseaters

THE BUCHER-SMITH CO.
East Liverpool, Ohio

BARRELS
Of These
KEYSEATERS



were sold each year for twelve years, and many of them were repeat orders. Any machine shop, no matter what kind, is losing money if they are not using our tools. Let us have a voice in the matter of your keyseating. Free conference along with our Catalog O will save you money.

National Machine Tool Company
2268 Spring Grove Ave., - Cincinnati, Ohio

"Wear-Ever" Woodruff Chuck and Keyway Cutter



Drives by the square

Centers by the shank

Let us supply you with the Cutters. No extra charge for the square.

The "Wear-Ever" Woodruff Keyway Chuck insures a positive drive and true-running cutter. Eliminates the making of collet chucks. Fits all standard makes of milling machines, and is made in all tapers such as Brown & Sharpe and Jarno tapers.

How about a trial order?

Scully-Jones & Company

Suite 555 Railway Exchange Bldg., Chicago, Ill.

"Velco" Broaching Tools
Boost Profits



REMEMBER—We make Broaching Tools for every manufacturing requirement. Let us quote you prices and delivery.

The Velco Mfg. Company, Inc.
Greenfield, Mass.

Once Used — Always Used

Our Tools are Tools of Precision and Always Give Thorough Satisfaction

Milling Cutters, Gear Cutters and Hobs
Metal Slitting Saws and Reamers
Woodruff Keyway Cutters and Broaches

We supply some of the biggest plants in the United States and we can take care of more—large or small.

We solicit a trial order

E. Lagerholm Company
(INCORPORATED)
9 So. Clinton St., CHICAGO

Davis Keyseaters

Are as much a part of the equipment of any shop or tool room as a lathe or shaper

They save time and labor, which is the essential thing in keeping the cost of production down in these days of high labor costs, and they save the big machines for the big jobs.



Made in two sizes

Send for pamphlet

Davis Machine Tool Co., Inc.

Rochester, N. Y., U. S. A.

The largest broaching machine ever made



—a J. N. Lapointe Co. No. 5
—only one of eleven types and five sizes. Ask for loose-leaf "Broaching Facts"—it's free, but valuable.

J.N. LAPOINTE CO.
NEW LONDON, CONN.

Makers of Broaching Machines and Broaches.
DETROIT OFFICE, No. 11 HARPER AVE.

All Kinds Of
Broaching Tools
For All Makes of Machines

HURLBUT-ROGERS Broaching Tools are made with the best obtainable equipment for the purpose, and by men who have been making Broaches for many years. The result is ***Satisfactory Service.***

Let us figure on your Broaching Tool needs

The Hurlbut-Rogers Broach Co.
Hudson, Mass., U. S. A.
Owned and operated by the Hurlbut, Rogers Machinery Co.

The Catlin Offers The Utmost in Keyseating

Has less than half the parts of any other keyseater



The Catlin combines unusual simplicity of mechanism with exceptional productive efficiency. It it also equally rapid and precise in operation.

It's such a hustler you can keep on feeding it without stopping machine. The bushing system permits instant and perfect centering by the bore. Cuts precisely to even finer than 1000ths of an inch. Ruggedly built. Made in sizes to cover all keyseating requirements.

It ranks among its satisfied users leading Shipbuilding and Engineering Corporations, and the U. S. and Foreign Navy Departments.

Glad to send you complete specifications

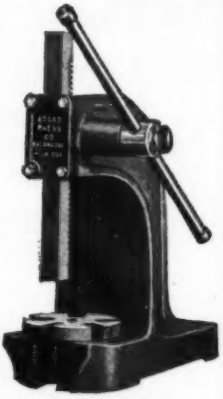
Chattanooga Machinery Company

Chattanooga, Tenn.

Atlas Presses

pay for themselves quicker today than ever before.

Built in all sizes for all work which can be practically accomplished by hand.



Atlas Press Co.

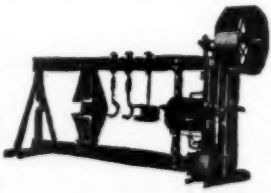
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We manufacture a complete line of standard hydraulic presses.



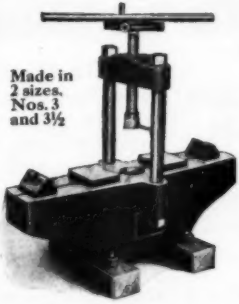
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Made in 2 sizes, Nos. 3 and 3½

For straightening shafts, bars, rails, beams, etc.

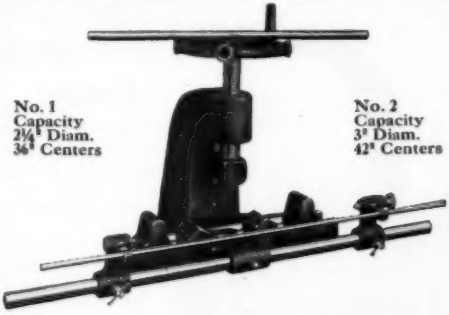
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The massive bed is 4-ft. long. The upright posts withstand many times any possible load. The hole under screw allows work to drop through, and permits pressing pieces on or off long shafts.

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Capacity
2¼" Diam.
36" Centers

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Capacity
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42" Centers

A handy tool for shop or garage for straightening shafts, arbors, reamers, boring bars, cam shafts, crankshafts, etc.; also for broaching or pressing gears, collars, etc., on or off. Ruggedly built of the best materials. ***May we describe and quote?***

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Straight Shank Cut-off Tool

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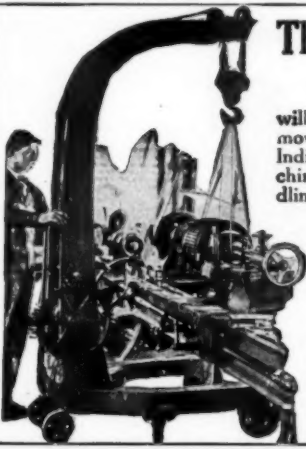
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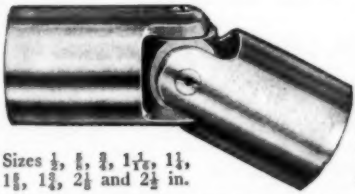
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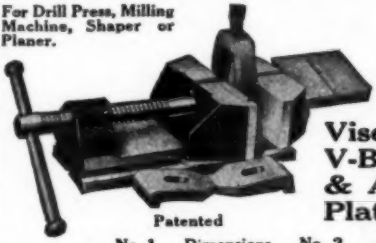
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65 lbs.	Weight	105 lbs.

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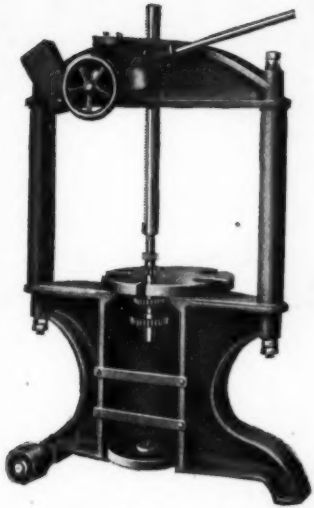
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The Underwood Boring Bar

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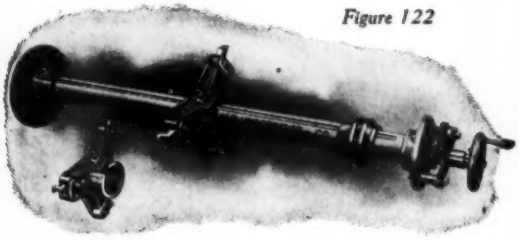


Figure 122

BESIDES doing perfect work, the Underwood Bar enables you to use the *whole power* of the lathe. It is quickly and securely bolted to the face plate, which gives it all the rigidity of the lathe and also centers that end of the bar.

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Millers; circular planer tools; radius planers; rotary planers; machines for truing eccentrics, facing domes, arms for facing cylinder flanges; rotary flue cleaners; pipe benders; locomotive cylinder borers; boring bars for lathe work; crank pin turners; reflex water glass grinders; and special machines built to order.

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Miller, No. 4 Hendey Lincoln.
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8"x30"—new machine—reduced price.

Immediate shipment.

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No. 24 Stewart oven furnace, equipped with Premix gas burner, motor and fan.
No. 108 Stewart oil tempering furnace, gas burner and blower.

Both in good condition, nearly new.

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AUTOMATIC SCREW MACHINE.

No. 6 B. & S. automatic screw machine with standard equipment, arranged for motor drive but without electrical equipment. Machine absolutely new, recently delivered. Price f. o. b. cars Baltimore, Md., $4,000.

FOR SALE BY

Federal Machinery Sales Company,

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Used Tools—Excellent Bargains

Bolt cutter, 1½" National, dbl. head.
Cold saw, No. 11½ Higley, 3".
Gear generator, 14" Lees-Bradner.
Grinder, No. 1 Fraser universal cylindrical.
Grinder, No. 31 Fraser semi-auto.
Grinder, 12"x24" Modern plain.
Grinder, Springfield universal gauge, with motor.
Keyseater, No. 0 Mitts & Merrill.
Lathe, 14"x6' Monarch, l. c. g., cr.
Lathe, 16"x6' Putnam, l. c. g., c. r.
Lathe, 17"x6' Perkins, l. c. g.
Lathe, 20"x8' Cisco, q. c. g., c. r.
Milling machines, No. 1½ Rockford plain, cone drive, (2).
Press, No. 20 Bliss, o. b. i., 2" stroke.
Riveter, ¾" Shuster.
Saw, No. 10 Racine.
Tapping machine, No. 1 Garvin vert.

FOR SALE BY

Reliance Machinery Sales Co.,

Brighton Road At Pennsylvania Ave., Pittsburgh, Pa.

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Boring mill, 60" Bullard, 2 swl. hds.
Brake, 8' Keene, 10 gauge.
Compressor, 10"x10" American, 175 cubic feet, belted.
Drill, 3' Fosdick radial, g. b., t. a.
Drill, 3½' Bickford radial, g. b., t. a.
Drills, 3½' Prentice plain radial. (2).
Drills, 4' Prentice radial, t. a., (2).
Drill, 36" Snyder, sliding head.
Drill, 26" Pratt & Whitney, sliding head.
Drill, 26" Aurora, s. h.
Hammer, 40 lb. Bradley cush. helve.
Hammers, 100 lb. Cady, belt lift, (4).
Lathe, 20"x8' L. & S. q. c. g., (3).
Lathes, Libby 22", type B., (9).
Lathes, Libby 26", type C., (2).
Lathe, 48" Niles car wheel.
Miller, No. 3 Becker-Brainard plain.
Planer, No. 2 crank.
Seamer, No. 3 Bliss plain, double.
Shapers, 16" Whipp. crank, new (2).
Shaper, 20" Whipp, bk. grd. cr., new.
Shaper, 24" Cincinnati, b. g. crank.

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20"x 8' Lodge & Shipley, grd. hd.
20"x 8' Reed, s. b. g., p. c.
20"x 8' Reed, motor driven.
22"x10' Davis, d. b. g., q. c.
32"x10' Pond, s. b. g., p. c.
34"x10' Putnam, s. p. g., p. c.
38"x14' Fifield, s. b. g., p. c.

MILLING MACHINES.

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No. 25 Becker, horizontal.
No. 1 Newton slab.
Model AB Becker, vert., motor dr.
Type "A" Briggs (2).
No. 6 Brainard, Lincoln.

DRILL PRESSES.

20" Mechanics, friction.
26" Barnes, sliding head.
28" Barnes, sliding head.
36" Aurora, sliding head.
2 spindle Guarantee, h.s., b. b.
4 spindle Reed sensitive, ½" cap., (2).
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2 spindle 24" Barnes, all grd. gang.

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No. 0 American Can.
No. 8 & No. 11 Bliss auto. button presses.
No. 16 Bliss, horn.
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New Swaine o. b. i. presses Nos. 27, 29, 31, 33 and No. 35.

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22"x5' Reed.
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3x36" Jones & Lamson.
16"x10" Milholland.
1½" Biggs (2).
No. 1 Garvin, hand, (4).
No. 1 B. & S. auto. ⅝" (2).
No. 3 Stecher, hand, (4).
16"x5' Dreses Fox.
18"x6' American Fox.
18"x6' Springfield Fox.
7/16" Cleveland, ratchet feed.
⅝" Cleveland, semi-auto.
⅝" Cleveland, friction.
⅝" Cleveland, jigger.
¾" Hartford, (2).
¾" Cleveland, jigger.

BOLT CUTTERS AND PIPE MACHINES.

1½" Acme, double head.
2½" Acme single head, (2).
4" Acme single head.
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MISCELLANEOUS.

Blower, No. 7 Sturtevant, high press.
Gang slitter, takes 21" sheets.
Gang slitter, takes 29½" sheet.
Gas engine, 35 h. p. Columbus.
Gas engine, 55 h. p. Bruce-McBeth.
Grinders, No. 2 Woods tool & cutter
Grinder, No. 2 Oesterlein tool & cut.
Grinder, Springfield, 2-wheel wet.
Grinder, Leland & F., wet.
Planer, 30"x30"x10' Pond, 1 head.
Profiler, 2 spindle Putnam.
Rivet spinner, 3/16" Grant, pedestal.
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Screw slotter, Garvin hor. 3/16 to ¾".

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2¼" Model A Cleveland automatic, with large equipment.

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2" Pratt & W. screw machine for chucking work, power feed.
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Springfield planer type grinder.

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19"x12' Flather.
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18"x 8' American.
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16" Lathes, (10).
14" Lathes, (19).
And many others.

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43"x 6' Lodge & Shipley chucking.
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48" Baush universal radial.
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14" 4-spindle Allen sensitive.
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Plain drills, all sizes.
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Grinder, disc, No. 17 Besly.
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Large assortment of General Machinery.
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Located at our various factories and stores.

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28″x18′ Niles, c. r.
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No. 6A Potter & Johnston automatic, motor drive.
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42″x42″x14′ Pond, 3 heads.
60″x60″x14′ Niles, 4 heads.
60″x60″x20′ Niles, 3 heads.
60″x60″x24′ Niles, 4 heads.
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11′ Gleason bevel gear generator.
6″x48″ P. & W. thread miller.
6″x80″ P. & W. thread miller.
Miller, No. 5 Brown & Sharpe plain, cone drive.

DRILLING MACHINES.

32″ Aurora, tap. att.
40″ Aurora, tap. att.
36″ Grant rad. drill and boring mch.
4′ Niles univ. radial, 220v., d. c. mtr.
5′ Niles semi-universal, old style.
6′ Niles full Univ., 220 v., d. c., m. d.
6′ Niles semi-universal, old style.
6′ Pond radial, 220 v., d. c. motor.
No. 13 P. & W. multiple drill.

GRINDERS.

8″x20″ No. 1 Fraser univ. grinder.
2½″ wet drill grinder.

BORING MACHINES.

No. 1 Bement horizontal, 2½″ spindle, 5′ table.
No. 2 Bement horizontal, 3½″ spindle, 6′ table.
No. 3 Bement horizontal, 4½″ spindle, 9′ table.
60″ Bement boring and turning mill.
10′ Niles b. & t. mill, 220 v., d. c. motor drive.
5″ Niles floor borer, 220 v., d. c. motor.
6″ Bement floor borer, no milling feeds.

MISCELLANEOUS.

Air compressor, type 10, Ingersoll-Rand, steam driven, capacity 535′.
Air compressor, Ingersoll-Rand duplex, with 35 h. p. d. c. motor, cap. 215′.
Air compressor, Gardner duplex, steam driven, 837′.
Blower, No. 10 Sturtevant.
Blower, No. 70 Buffalo.
Crane, 3 ton, 19′ span, Niles, 220 v., d. c.
Crane, 20 ton, 48′ span Sellers, 220 volts, direct current.
Engine, 164 h. p. McEwen, direct connected to 100 k. w. generator, d. c. 230 v.
Keyseater, No. 1 Baker.
Oil separator, No. 1 American.
Profiler, No. 3 automatic, Keller.
Saw, 8″ rounds, Higley.
Slotter, 6″ Bement.
Slotter, 14″ Niles.

SECOND-HAND MACHINERY

FOR SALE BY

E. B. Stickley Mchy. Co. 217-221 E. Congress St., Detroit, Mich.

Automatics, 14" Fay, (2).
Drill press, 1x6 Baker, vert. auto.
Gear generator, Bilgrams, 16".
Gear gen. Gleasons, 6", 11" and 18".
Gear machines, Fellows, 36", for spurs. (3).
Gear machine, No. 2-B Newark, 24", for spurs and bevels.
Grinder, No. 4 Gardner double end, ring wheel.
Grinder, No. 2 Landis, internal.
Milling machine, Ingersoll, slab type, 42x42x12', motor drive.
Turret lathes, Steinle 24", single pulley drive, (3).
Turret lathes, No. 24 G. G. Prentice, 4-spindle semi-automatic (2).
Turret lathes, single and double spindle, Jones & Lamson, (4).

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

15"x 6' Sidney, c. r., 4-step cone.
16"x 6' Hamilton, c.r.&t.a., std. pat.
16"x 8' Lodge & Shipley, t. a.
17"x 8' LeBlond, 3-st. cone, hvy. duty.
18"x 8' Prentice Bros., c. r., g. h.
20"x10' Prentice Bros., c. r., g. h.
24"x14' Boye & Emmes, c. r., 3-step cone.
24"x22' Union Machine Co., c. r.
30"x12' Boye & Emmes, comp. rest.

TURRET LATHES AND SCREW MACHINES.

14" Lodge & Davis, plain head.
24" Davis turret boring and chucking lathe, with forming rest.
1¼" Acme screw mche., p.f. to tur.. (3).
22" Lodge & Shipley heavy duty turret boring lathe.
26" Gisholt heavy duty turret lathe.
No. 2-A Warner & Swasey g. h. turret lathes, (2).
No. 3-A Warner & Swasey g. h. turret lathe, (3).
2"x24' Jones & Lamson g. h. flat turret lathe.

AUTOMATIC SCREW MACHINES.

2" Hartford full automatic.
No. 0 Brown & Sharpe universal.

DRILLING MACHINES.

No. 1 Burke, bench, (2).
4 spdl. Barr, pl. bearing, sensitive.
Single spdl. upright sensitive, (2).

MILLING MACHINES.

Bench miller on column, with c. s.
No. 1 U. S. hand, 3 st. cone, c. s., (5).
No. 15 Garvin plain, b. g., (2).
No. 22 Garvin, vertical spindle.
No. 3 Burke, bench type, hand.

GRINDERS.

No. 10 Cochrane-Bly auto. bench saw filing machine.
12"x66" No. 4 Landis univ., complete.
No. 1 Warner & Swasey, cock.
Type "DE" Hisey-Wolf internal.
No. 12 B. & S. plain, complete.
No. 1 Besly, disc.
Gisholt tool grinder.
American drill grinder.
No. 14-16 Besly, wet ring wheel.

HAMMERS AND RIVETERS.

No. 2 High speed riveting hammer.
Coffman post pwr. dr. hammer 25 lbs.
Cady belt drop hammer, 100 lbs.
1½" thr. Grant rivet spinning mche.
No. 203 Grant rivet spinning mche.

METAL CUTTING TOOLS & SQUARING SHEARS.

Excelsior power hack saw.
12" Burke metal cold saw.
Higley cold saw.
Newton metal cutting cold saw.
No. 1½ Higley cold saw.

PUNCH PRESSES.

No. 11 Badger, hand.

GEAR CUTTERS.

26" No. 3 Brown & Sharpe auto., (2).
No. 13 Brown & Sharpe auto., (2).

MISCELLANEOUS.

Boring mche., 23" swing, Star horiz.
Broaching mche., No. 2 Lapointe.
Crane and hoist, Canton No. 3.
Planers, 22"x22"x5' Putnam, 1 hd., (3).
Planer, 22"x22"x5' Gray, 1 hd.
Polishing lathes, City Machine Co.
Separator, American, oil.
Tapper, ⅜" Burke, bench.
Tapper, ½" friction vertical bench.

SECOND-HAND MACHINERY

FOR SALE BY

Brown-McDonald Machinery Co., 2323 N. 9th St., St. Louis, Mo.

LATHES.

13″x 6′ South Bend, c. r., h. s., new.
13″x 6′ Lancaster, c. r., h. s., new.
15″x 8′ South Bend, c. r., h. s., new.
15″x 6′ Sebastian, h. s., used.
16″x 8′ Walcott, q.c.g., d.b.g., new.
18″x 8′ Walcott, q.c.g., d. b. g., new
20″x 8′ Amer., q.c.g., d.b.g., used.
20″x 8′ Lodge & Shipley; used.
20″x 9′ Williams boring lathes.
20″x10′ Walcott, q. c. g; d. b. g; new
20″x10′ Fifield, chuck.
26″x 8′ Walcott plain turning.
26″x12′ Walcott, q.c.g., d.b.g., new.
26″x12′ Wickes, heavy duty, quick change gear, double bk. gear, with taper attachment, new.
26″x12′ Draper, triple geared.

TURRET LATHES.

Foster No. 3, plain head, (7).
Wood Tilted Turret (2).
Omar, with equipment, (3).
Wysong & Miles, air chuck, (2)
16″x 7″ Fulton, (4).
14″x4′ 6″ S. & K.

DRILLING MACHINES.

No. 1 Burke, bench, chucks, new.
½″ Leland Gifford, high speed.
3 spindle Reed No. 33; used.
4 spindle Garvin; used.
4 spindle Allen, high speed.
5 spindle Allen, high speed.
6 spindle Allen, high speed.
13″ Prentice, p. f., stat. table, used.
20″ Champion, s. b., w. & l., new.
20″ Champion, s.b., b.g. & p.f., new.
Prentice suspension drill; used.
25″ American, sl. h., b.g., p.f., used.
30″ Gould & E., sl. hd., b. g., p. f.

PLANERS.

36″x36″x15′ Patch, o. s., 1 hd. on cross rail, 1 head on side, used.

MILLING MACHINES.

No. 2 American Lincoln, b. g., new.
No. 1 U. S. hand, vise and arbor.
No. 2 P. & W., Lincoln type, used.
No. 1 B Fox hor., h. & p. f. new.
24″ Osterlein, universal.
No. 3 B Owen pl. hor., with vertical attachment & dividing head, used.
Hendey, Lincoln type, b. g. with q. c. g. to feed, tables 11x30, (6).
No. 3 Garvin, hand, used.

PRESSES.

No. 2 Loshbough-Jordan, o.b.i.; new
No. 3 Loshbough-Jordan, o.b.i., new.
No. 1 Greenerd, arbor, used, (9).
No. 2 Greenerd, arbor, used, (6).
Nos. 2 & 3 Geier, arbor; new.
Perfection, 30 ton, arbor; new.

SAWS.

Nos. 1 & 2 Marvel, draw cut, new.
No. 1 Racine, 6x6 high speed, new.
Racine hi- speed, 3 sp., 8x8″ used.
Williamson, metal, used.

GRINDERS.

Nos. 1, 2 & 3 Western, d. e., new
Nos. 1, 2 & 3 St. Louis, d. e., new.
No. 20 Safety E. W. Co., elec. (4).
U. S., electric, 110 v., d. c., bench.
U. S., electric, 110 v., a. c., bench.
Essley, cylindrical.
No. 2 American, surface, new.
No. 1 Platt surface, tables 6″x14″, (6).

HAMMERS.

30 lb. Rochester helve, used.
Foot hammer, Standish.
800 lb. Lane, dbl.fr., st. forging, used.
No. 5 Star trip hammer, new.
1200 lb. Chambersburg double frame, steam forging, used.

MISCELLANEOUS.

Bolt threader, Greenfield ½″ to 1½″.
Bolt threader, Greenfield ½″ to 2″.
Brake, 8′ D. & K., steel; new.
Filing mche., No. 2 Cochrane B. used.
Lathe chucks, all sizes to 16″ diam.
Motor, 1½ h. p., G. E., 3 ph. 60 cy., 220 v., 1800 r. p. m. new.
Motors, 5 & 7½ h.p. G.E., 220 v., new.
Motor, 15 h. p. G. E., 3 ph., 60 cy., 220 v., 1800 r. p. m., new.
Pipe cutter, B. & K., 4″ cap.
Pipe mch., No. 76 Forbes, 3″, used.
Pipe machine, 3″ Borden, hand.
Shaper, 16″ Whipp, sgl. gr.; new.
Shear, 42″ Niagara, foot gap; new.
Stake punch & riveter, No. 3 Hilles & Jones, 5′ thr., wt. 16000 lbs., used.
Welder, Federal electric, capacity ¼″; used.

SECOND-HAND MACHINERY

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1001-3-5 N. Sixth St., St. Louis, Mo.

LATHES.

13″x 7′ Carroll-Jamieson.
18″x 9′ Chard.
21″x 9′ Lodge & Davis.
22″x10′ Dietz gang.
24″x12′ Schumacher & Boye.
24″x12′ Lodge & Shipley.
25″x16′ Niles.
26″x10′ Bridgeford, q. c.
26″x10′ Reed.
32″x20′ Draper, triple geared.
40″x16′ Fitchburg.
54″x16′ Putnam.
72″x30′ triple geared.

PLANERS.

16″x16″x14′ crank.
25″x25″x 6′ Liberty.
22″ stroke Wetherill traveling head shaper.

MILLING MACHINES.

No. 9 Kempsmith plain.
No. 14 Kempsmith plain.
No. 3 Becker plain.
Owen duplex.
No. 3 Cincinnati universal.
No. 4 Becker vertical.
No. 3 Becker.

DRILLING MACHINES.

40″ New Haven drill.
24″ Foote-Burt.
16″ Kern high speed.
6′ arm Prentice.
30″ arm Hamilton plain.

MISCELLANEOUS.

Boring mill, 36″ turret head.
Boring and drilling machine, horiz., No. 2 Pawling & H.
Cold saw, Q. & C. 28″.
Gear shaper, 36″ Fellows.
Marking machine, Mathews.
Pipe mch., 12″ Jarecki, engine drive.
Slotter, 6″ Sellers.

FOR SALE BY

Simmons Machine Co., Inc., Albany, N. Y.

801 Singer Bldg., New York, 86-88 Exchange St., Buffalo, N. Y.

LATHES.

84″x26′ Putnam heavy duty, motor drive.
64″x20—51′ Detrick-Harvey, motor drive.
New 60″x29′—56′ Niles-Bement-Pond high duty, motor driven, (5).
New 48″x29′—56′ Niles-Bement-Pond, motor drive, heavy duty, (6).
New 36″x34′ Bridgeford, all geared-head, (3).
36″x14′ Putnam, heavy duty, motor drive, (2).
27″x24′ & 18′ LeBlond heavy duty, belt drive, (14).
27″x18′ LeBlond heavy duty, motor drive, (12).

PLANERS.

72″x56″x16′ Gray, four heads, belt drive.
60″x60″x20′ Woodword-Powell, four heads, motor drive.
New 48″x48″x28′ Cincinnati, two heads, motor drive.
New 48″x48″x20′ Niles-Bement-Pond, four heads, motor drive.
New 42″x42″x12′ Simmons openside planer, two heads.
30″x30″x18′ Cincinnati, medium pattern, two heads.

BORING MILLS.

New 36″ Bullard New Era type vertical, four-jaw chuck, cutting lubricant system, motor bracket, K-T tool holder, 10 h. p. Allis-Chalmers, 220 volt, 60 cycle, 3-phase motor with starter.
34″ Bertram vertical, turret head.
72″ Cincinnati vertical, boring-turning mill, two heads.

MILLING MACHINE.

No. 2 Brown & Sharpe vertical.
No. 2 Cincinnati plain.
No. 3 Cincinnati plain.
No. 5 Brown & S. vert. & pl.,(2).

MISCELLANEOUS.

Broaching machines, No. 1 and No. 4 LaPointe.
Drills, 4-D Colburn high duty, (3).
Grinder, new 14″x96″ Norton plain, also 18″x96″.
Grinder, No. 5 Brown & S. univ.
Screw mch., new, B.& S. No. 0G auto.
Shapers, 32″ Cincinnati high duty, complete, (9).
Turret lathe, No. 2-A W.-S. bar equip.

FOR SALE BY

Russell Machine Co., Inc., 28th St. & A. V. R. R., Pittsburgh, Pa.

LATHES.

60″x40′ N. B. P., triple geared.
60″x34′ Pond, triple geared.
48″x28′ Niles, c. r.
36″x18′6″ Niles, c. r.
28″x12′ Boye & Emmes, q.c.g., d.b.g.
27″x12′ Pittsburgh, dbl. b. g.
26″x20′ 6″ Putnam, b. g., c. r.
26″x10′6″ Walcott, q. c. g.
24″x16′ 6″ Johnson lathe.
24″x12′ Ames, b. g., c. r.
22″x12′ Greaves-Klusman, q. c. g.
19″x10′ LeBlond, motor drive.
18″x 8′ Rahn-Larmon, q.c.g., d.b.g.
18″x 8′ Sidney, q. c. g., d. b. g.
18″x 5′ Bullard, n. s.
15″x 8′ Schellenbach, d. b. g., h. s.
14″x 6′ Hendey, q. c. g.
14″x 6′ LeBlond.
14″x 6′ Ames, hollow spindle.
14″x 5′ American speed lathe.
24″x 6′ Gisholt turret, 6¼″ h. s.
24″x 6′ Gisholt tur., 6¼″ h.s., m.d.
22″x 8′ Bullard turret lathe.
18″x 5′ American brass finishers'.
Speed lathes, various sizes.
Pryibil 22″/44″ gap spinning or wood turning lathe, 64″ bed.

PLANERS AND SHAPERS.

20″x20″x51″ planer, 1 hd.
48″x48″x16′ Pond planer, 4 heads.
72″x36″x12′ Betts planer, 2 heads.
14″ Walcott geared rack shaper.
16″ American, b. g., m. d.
26″ G. & E. sgl. grd. crank shaper.
24″ Cincinnati b. g. shaper, m. d.
26″ Smith & Silk rack shaper.

DRILLS AND BORING MILLS.

20″ Champion, new pl. & bk. gd.
20″ Silver, new, plain and bk. gd.
24″ Prentice b. g. drill.
40″ New Haven, b. g. drill.
40″ Prentice b. g. drill.
3′ Prentice radial drills, t.a.
No. 1 Burke bench sensitive.
No. 3 Phoenix air drill.
2″ Duntley elec. hand drill.
10″ Dwight-Slate sensitive, floor.
No. 90 Champion post drill.
Garvin 4 spindle drill press.
30″ Warner-Swasey boring mill.
36″ Bridgeport boring mill.
36″ Niles boring mill., 2 heads.
50″ Bullard boring mill, 2 heads.
60″ Niles boring mill, 2 heads.

PUNCHES, SHEARS, PRESSES AND ROLLS.

50″ throat Reade sgl. end punch and shear; massive construction.
Ohl 122″x¾″ power shear.
Garrison plate shear, cap. ¾″x81″, m.d.
Mesta plate shear, cap. 4″x156″.
Knight s. e. punch, 8″ thr., 2″x2″.
18″ throat Rees s. e. punch.
18″ throat Rees s. e. shear.
Long-Allstatter type A shear, 9″x1″.
No. 56 dbl. housing knuckle press.
Stiles & Parker Nos. 3 & 4 presses.
Straight-side grd. forging press, 6″ stroke.
Straight-side punch press, ¾″ str.
Bliss No. 70, s. s., d.g. press, 11″ str.
Corry Mch. Co. press, 12″ stroke.

MILLING MACHINES.

No. 2 Cleveland universal.
No. 2 LeBlond universal.
No. 3 LeBlond plain.
No. 6 Becker vertical, table 60″x19″.

MISCELLANEOUS.

Air compressor, No. 0 Au-To 3″x4″.
Band saw, Greaves-Kluaman 36″.
Bender, Wallace No. 11 angle, hd. pr.
Blower, Root No. 3 Acme, hand.
Blowers, Sturtevant No. 00.
Blower, Sturtevant, No. 4 and 8 vol.
Blower, Buffalo No. 8 volume
Blowers, Buffalo Nos. 5, 6, 8 & 9 pressure.
Boiler, 24″x8′ vertical.
Bolt cutter, Landis 1½″
Brazing table, all iron, 17″x29½″x31″.
Chain belt, 16′x8″x1½″ p. and gear.
Cold saw, Gliem, 22″ diam. 6″ cap.
Crane, 10″ I-beam, 12′3″ span, with Harrington 6,000 lb. chain hoist.
Crimping machine for short work.
Forges, Nos. 41-43 Champion new.
Grinder, Greenfield cutter & tool.
Grinder, Diamond No. 3 wet tool.
Grinders, Plymouth Nos. 13, 14, 17.
Grinder, Barnes 20″ wet tool.
Hack saw, Millers-Falls, 8″x5″.
Index centers, 12″ B. & S. univ.
Metal lockers, 10 sections.
Pipe mch., E. C. & B. ½″ to 2″.
Polishing stand, Diamond No. 2.
Polishing stand, d. end, 42″x1¼″ arbor.
Polishing stand, Cuyahoga dbl. end.
Roll lathe, 20′ long, suitable for 12″, 14″ and 16″ rolls.
Slotter, Niles 15″.
Straightening rolls, Cleveland, 84″x10″ dia.
Trimmer, American No. 2, univ. wood.
Vises, Forges, Pumps, Tanks.

SECOND-HAND MACHINERY

FOR SALE BY

Hall & Brown Wood Working Machine Co.
Broadway, Tyler & Ninth Sts., - - St. Louis, Mo.

Air compressor, 8x8 Thurman, double cylinder.
Car wheel boring machine, 38″ swing.
Engine lathe, 20″x8′6″ bed Harrington.
Engine lathe, 20″x11′0″ bed Lodge & Davis.
Flat turret lathe, 2″x24″ Jones & Lamson.
Milling machine, No. 3 Brainard plain.
Pulley turning lathe, Streit 36″.

FOR SALE BY

The Enterprise Machinery Co., **28 S. Clinton St., Chicago.**

Air compressor, 4″ duplex	$ 175.
Bolt cutter, ½″ Acme, 2 sp.	650.
Brake, 8′, 18 gauge Chicago	135.
Crane, 15-ton, 50′ cab control	5500.
Grinder, Bath No. 2 cylindrical	800.
Grinder, univ., all angle, new	450.
Grinder, disc, semi-univ.	125.
Hammer, 100 lb. belt	100.
Kalomine dies, complete set door, window and trim	150.
Lathe, 16x6, Blaisdell, p. c. f.	180.
Lathe, 16x8 stud, heavy	125.
Lathe, 33x16 Bridgeport	1275.
Lathe, 12x4 Monitor	75.
Lathe, 14x5 spin., Schultz	125.
Lathe, turret, 16x6	$ 125.
Lathe, spinning, 18″ Pryibil, new	350.
Pipe machine, 6″ Oster	350.
Press, punch, Bliss 20½	350.
Press, horn, bench, new, 150 lb.	120.
Press, punch str. side, 4000 lb.	500.
Press, punch, bench 130 lb., 11″ wheel, auto. stop, cap. ¾″ in 1/16″, new	90.
Shaper, 16″ Baker & Co.	525.
Shaper, 16″ Springfield	390.
Shaper, 26″ Wolcott	190.
Shear, 42″, pwr., Peck S. & W.	250.
Shears, circle, hand & pwr., 45 & 55.	

FOR SALE BY

The O'Brien Machinery Co., **119 N. Third St., Philadelphia, Pa.**

Bending rolls, 8′, 8″ and 6″ diam.
Bolt cutter, ¾″ Acme, single head.
Bolt cutter, 3″ Acme, single head.
Boring mill, 32″ Rogers, turret hd.
Boring mill, 52″ Bement vertical, with 2 heads, motor driven.
Drill, 3½ spindle Baker Bros. heavy duty upright.
Drill, Allen 5-spindle, high speed.
Drill, Allen 6-spindle, high speed.
Drills, Moline heavy duty hog drills (2).
Hammer, 800 lbs. Bement-Miles, double frame steam.
Hammer, 1200 lbs. Bement-Miles, double frame steam.
Hammer, 2,000 lb. United Engine Co. board drop.
Lathe, 8″x108″ Fitchburg Lo-Swing.
Lathe, 16″x7′ Pratt & Whitney.
Lathe, 18″x9′ Lehman.
Lathe, 20″x8′ Lehman.
Lathe, 20″x12′ Flather.
Lathe, 20″x14′ Powell.
Lathe, 24″x10′ Gang.
Lathes, 24″x10′ Perkins, (3).
Lathe, 24″x12′ Flather.
Lathe, 36″x22′ Hughes & Phillips.
Lathe, 48″x16′ Sellers.
Lathe, 85″x18′ Bement.
Miller, No. 3½ Fox.
Miller, No. 4 Cincinnati, geared head, single belt drive.
Miller, 18″ Cincinnati plain.
Miller, No. 3 Becker vertical.
Pipe machine, 4″ Oster.
Pipe machine, 2″ Cox, heavy duty.
Pipe machine, 2″ Oster.
Pipe machine, 4″ Oster.
Pipe machine, 6″ Oster.
Pipe machine 2″ Landis double head pipe and nipple machine.
Planer, 22″x22″x5′ Borrell.
Planer, 30″x30″x10′ Sellers.
Planer, 50″x50″x18′ Betts.
Presses, several Waterbury Farrell double acting, weight 2,000 lbs.
Presses, Toledo No. 53 straight sided power, 3½″ stroke, (7).
Radial drill, 4′ Bement.
Shaper, 24″ Hollingworth bk. grd.
Shaper, 16″ Hollingworth, back grd.
Shapers, 2—12″ & 2—15″ Springf'd.
Shapers, 12″, 20″ and 24″ Juengst.
Slotter, 12″ stroke Bement.
Turret lathes, No. 3 Warner & Swasey, geared friction head, (4).

SECOND-HAND MACHINERY.

FOR SALE BY

Brownell Machinery Co., - 11-13 Eddy St., Providence, R. I.

Boring mill, No. 1 Beaman & Smith horizontal, 3″ spindle.
Drills, 24″ Dexter.
Drills, 36″ Foote-Burt.
Drills, 3′ T. & F. sensitive radial.
Drills, 4′ Fosdick radial.
Drill, 6-spindle Taylor & Fenn.
Grinder, No. 1 Fraser universal.
Grinder, 7x72 B. & S. plain.
Lathe, 14″x 5′ Dexter.
Lathe, 18″x 8′ Rahn Larmon.
Lathe, 25″x14′ Sidney.
Miller, Becker heavy, hand.
Miller, No. 3 Bristol vertical.
Miller, Thurston die.
Miller, No. 2 Pratt & Whitney plain.
Miller, No. 4 Van Norman.
Planer, 17″x20″x5′ Whitcomb-B.
Planer, 20″ x 20″ x 4′ Thayer and Houghton.
Presses, straight-sided single-acting power, 3″ stroke.
Press, s. a. dial feed, 8″ stroke.
Press, No. 9 Manville, flywheel type.
Press, No. 27 Bliss, knuckle joint.
Press, No. 1 Standard broaching and drawing.
Press, 200 lb. Standard, auto. drop.
Screw machine, No. 4 D. & W.

FOR SALE BY

Chas. Molitor Machinery Co., 124 S. Clinton St., Chicago, Ill.

MILLING MACHINES.

No. 3 Ingersoll vertical.
No. 4 Cincinnati plain.
No. 3 LeBlond plain.
No. 3 Becker, vernier attachment.
No. 18 Cincinnati, b. g.
Fulton plain, Lincoln type.

LATHES.

36″x14′ Niles Bement. qu. ch., (3).
24″x 8′ South Bend, (2).
21″x10′ LeBlond, qu. ch., (2).
19″x10′ LeBlond, qu. ch., (2).
21″x 8′ LeBlond, qu. ch.
19″x 8′ LeBlond, qu. ch.
20″x 8′ Lodge & Shipley, pat. head.
20″x 8′ Monarch, qu. ch., (6).
14″x 6′ Hendey, tap., qu. ch.
14″x 6′ Lodge & Shipley, tap., qu.ch.

SCREW MACHINES AND TURRET LATHES.

Acme 1¼″ cap., hand and power.
Nos. 2, 4 and 6 Warner & Swasey.
Nos. 0 and 1 Foster, (8 new).
Nos. 3 and 5 Foster, b. g., etc.
Jones & Lamson, (2).
Greenlee, incl. cut-off, (2).
2″ cap. Pratt & Whitney.
No. 6 Foster, b. g., etc.

GRINDERS.

No. 65 Heald cylinder.
8″ Heald piston ring.
Bath universal grinders, (2).
No. 14 Besly disc grinder.
16″x66″ Landis.
12″x26″ Landis.
9″x36″ Leland universal.
No. 3 Rivett grinders.

PLANERS AND SHAPERS.

48″x12′ American, motor drive.
30″x 8′ Harrington.
15″ Smith Mills, crank.
20″ American, crank.

DRILL PRESSES.

30″ Warner-Swasey boring mill.
24″ Baker h. sp., comp. table.
24″ Baker, size 2, high duty.
24″ Aurora, b. g., tapp. attach., sl. h.
22″ Kokomo, high sp., slid. hd.
6 sp. Allen high sp., ⅝″ cap.
3 sp. Allen high sp., ½″ cap.
Leland Gifford h. s., ⅜″ cap.
Henry-Wright high sp., ⅜″ cap.
2 sp. Barnes pl. & g., 1″ cap.

PRESSES, HAMMERS, BRAKES, ROLLERS.

Long & Allstatter, wt. 20,000 lbs.
Waterbury Farrel, double back gear, adjustable stroke 3″-16″.
Crosby, 25″ arch press.
Nos. 0, 1, 2 and 3 incl. and stat.
10′ Keene toggle press or brake.
600 lb. Massillon steam hammer.
50 lb. Bradley helve hammer.
3′, 8′, 10′ Robinson & Keene brakes.
7″x38″ Ohls crimper.
8′x5″ power slip rolls.
4′x5″x3″ power slip rolls.

MISCELLANEOUS.

Bolt cutter, Acme, 3″ cap.
Bolt cutter, Foote-Burt, 1¼″ cap.
Gear cutter, 3″ Gould & Eberhardt.
Hammer, Little Giant, spring.
Nut tapper, 4-sp. National Acme.
Riveters, ⅜″-⅞″ Shuster.
Routing mach., Leland Gifford.
Slotter, rotary table 8″.

Large variety of Tapping Machines, Chucks, Vises, Arbor Presses, Auto. Die Heads, Screw Presses, Tinners' Tools, Emery Wheels, Carborundum Discs, etc., etc.

SECOND-HAND MACHINERY

FOR SALE BY

W. E. Pratt Mfg. Co., - 190 N. State St., Chicago, Ill.

Engine lathes, 24″x144″ Cisco, double back geared, quick change.
Lo-Swing lathes, 8″x60″ Fitchburg standard.
Turret lathes, 18″ Libbey, geared head, 6-hole turret, single pulley drive, side carriage, 4 way tool post.
Condition of above machines first-class, practically new.

FOR SALE BY

Frank H. Parker Company. First Nat'l Bank Bldg., Chicago, Ill.

Bending roll, 8′, has 5″ rollers,	$ 400.
Boring mill, 60″ Bickford, 3 hds.	2500.
Brake, 8′ Robinson heavy	250.
Cupola, 48″x32′, good shape	600.
Drill press, 38″, s. h., b.g.	400.
Drill press, 48″, s. h., b.g.	700.
Drill press, 4′ radial	600.
Drill, Minster No. 2, 24″, h. d.	1300.
Hammer, 300 lb. Broughty	600.
Hammer, 40 lb. Bradley helve	500.
Lathe, 14″x6′ Flather, h.s., p.r.	200.
Lathe, 16″x6′, no back gears or screw	125.
Lathe, 16″x8′ Reed, h. s., p. r.	200.
Lathe, 16″x8′ p.r., s.s., complete	200.
Lathe, 18″x6′, hol. spdl., c. r., s. q. c., double back gear	500.
Lathe, 21″x8′ Bradford, h.s., c.r.	700.
Lathe, 26″x10′, s.s., c.r. chuck	$ 400.
Lathe, 28″x14′ R.-M., late type	1000.
Lathe, 30″x14′ with 40″ raisers	600.
Lathe, 30″x22′, q. c. g., t. a.	1600.
Lathe, 32″x24′ New Haven	2000.
Lathe, 40″x32′ and motor	2000.
Lathe, 50″x20′ New Haven	3500.
Lathe, 72″ wheel	1500.
Miller, No. 3 Owen pl., d.b.g.	1300.
Miller, 5-B. U. S. plain	1400.
Miller, P. & W., table 18x54	800.
Planer, 14″x48″ small size	250.
Planer, 32″x32″12′ Niles, 2 hds.	1500.
Shaper, 24″, belt shift, friction	300.
Shear, 40 sq., No. 12 ga. pwr.	300.
Welder, Windfield spot, 25 k.w., ¾″ cap	900.

FOR SALE BY

McCoy-Brandt Machinery Company
Office and Warehouse, 210-218 Penn Ave., Pittsburgh, Pa.

AUTOMATICS.

Nos. OG, 2 and 2G Brown & Sharpe, good as new.

BORING MILLS.

42″ Colburn, 1 swivel, 1 turret head.
42″ Putnam, 2 swivel heads, s. p. d.
84″ Pond, 2 heads, belt drive.

HAMMERS.

200 lb. Bement steam, single frame.
2000 lb. Erie steam, single frame.
600, 700, 1000, 8000 and 12000 lb. steam, double frame.
1000 and 1500 lb. Massillon steam drop.
400, 500, 600, 800, 1000 and 1100 lbs. B. & S. board drop.

LATHES.

12″x 6′ Hendey, belted.
14″x 6′ Hendey, belted, t. a.
18″x 9′ American, q. c. g.
20″x 7′ American, q. c. g.
24″x26′ American, geared head, motor 220 v., d. c.
26″x12′ Putnam, q. c. g.
New Sidney Lathes 14″ to 36″ swing.

BENDING ROLLS.

16′ Wickes, cap. 1″ plate, m. d.
12′ H. & J., cap. ⅜″ plate.
8′ Niles, cap. ⅜″ plate.
5′ Niles, cap. 3/16″ plate.

MISCELLANEOUS.

Blower, No. 10 Sturtevant, Monogram.
Millers, Nos. 0 & 2 B. & S. plain.
Miller, No. 3 Cincinnati plain.
Miller, No. 3 B. & S. universal.
Planer, 42″x42″x8′ Gray, 4 heads.
Shaper, 32″ Cincinnati, b. c. crank.
Shears, guillotine, cap. 1″ & 2″ sq.
Shears, squaring, 48″, cap. 3/16″.
Shears, squaring, 42″, cap. ¼″.
Shears, squaring, 42″, cap. 14 ga.
Shear, rotary bevel, cap. ⅜″ plate.

Used Equipment in excellent condition. Immediate shipment—Partial List.

FOR SALE BY

Strafer Machinery Co., **120 Liberty St., New York City.**

Automatics, 7A Potter & Johnston.
Automatics, Fay lathes.
Boring mill, 42" Rogers, geared fd.
Boring mill, 48" Colburn, s. pulley dr.
Boring mill, 42" Bullard, 1 turret hd.
Drill, 6' Baush, plain.
Drill, 6' Niles-B.-P., full universal.
Grinder, No. 60 Heald, cylinder.
Grinder, No. 75 Heald, internal.
Grinder, No. 2 Landis, univ., complete.
Keyseater, No. 2 Baker.
Lathe, 30"x24" American, g. h., new.
Lathe, 36"x14' Putnam, triple geared.
Lathe, 18"x 8' American, latest type.
Lathe, 16"x 8' Reed, low price.
Miller, No. 2 Rockford, pl., hvy. duty.
Miller, No. 3 LeBlond, plain.
Miller, No. 3, 4 & 5 Cincinnati, high power, new.
Miller, No. 1-D Brown & S., univ.
Punch & shear, No. 4 Whiting, sgl. end, cap. $\frac{5}{8}$" thru $\frac{3}{4}$", 30" throat, belt drive.
Punch & shear, double end, 18" throat, cap. $\frac{5}{8}$".
Shaper, 16" Smith & Mills.
Shaper, 24" Cincinnati.
Shaper, 16" Newark, gear box drive.
Slotter, 24" Niles-B.-P. motor drive, very fine.

What you don't see—ask for.

FOR SALE BY

Tubor, Velick & Co., **629-631 W. Lake St., Chicago, Ill.**

LATHES.

14"x 6' American, q. c.
20"x 8' Putnam, c. r.
20"x18' Wickes, double b. g., q. c.
22"x 8' Hamilton, c. r.
22"x10' Cisco, d. b. g., q. c.
LeBlond, heavy duty, semi q. c.
30"x60 Fitchburg Low-Swing, (10).
Axle lathes, (5).

PUNCH PRESSES.

60-ton rack and pinion, (4).
No. 18 Bliss inclinable.
No. 18 American Can inclinable.

SCREW MACHINES.

Smurr & Kamen No. 4, (10).
Smurr & Kamen No. 3, (2).
Warner & Swasey No. 4 turret, (4).

MILLING MACHINES.

U. S. hand millers No. 2, (25).
Fox No. 3½, (25).
Hendey, Lincoln type No. 4, (10).
Wisconsin hand millers, (15).

DRILL PRESSES.

4-5-6 spindle Allen h. s. ball bearing.
Barnes 25", b. g., p. f.
Barnes 20".
Barnes 22".

FOR SALE BY

Frank Toomey, Inc., **127-131 N. Third St., Philadelphia, Pa.**

LATHES.

42" Pond car wheel lathe, motor dr.
36"x22' Bridgeford g. h. motor drive.
36"x16' Sidney, d. b. g., q. c., new.
24"x14' LeBlond, t. a.
24"x14' Schumacker-Boye, t. a.
27"x14' Sidney, d. b. g., q. c., new.
14" to 21"x6' to 12" Sidney.
12" to 15"x6' to 12" Carroll-Jamieson.

Large stock used lathes.

PLANERS.

16"x16"x42" Walter, 1 h.
36"x36"x8' Gray, 2 h.

SHAPERS AND SLOTTERS.

12"-14" Dill slotter.
14" Steptoe, shaper.
16"-20"-24" Steptoe, back gear, new.
7" Rhodes, precision, new shaper.
16" Smith-Mills shaper, used.
18" Newton motor dr. slotter.

MILLING MACHINES.

No. 4 Brown & Sharpe, plain.
No. 24 Oesterlein plain.
No. 22 Garvin vertical.
No. 2 M. U. Garvin, universal, new.
No. 1 Dow, plain, new.
No. 3 Burke, hand, new.

DRILLING MACHINES.

3' Mueller, plain, radial.
4' Mueller, plain, radial.
3 spindle Barnes, back gear.
8 spindle Baush multiple.
No. 201 Kokomo, hi-speed.
No. 161 Kokomo, hi-speed.

FOR SALE BY

Walther Machinery Co., 629 Main St., Cincinnati, Ohio

Drill press, D-3 Colburn heavy duty, used.
Drill presses, U. S. sensitive, motor driven, d. c., 220 v., (2) used.
Drill, 8-spindle multiple, No. 4 Morse, used.
Lathe, 13″x6′ Willard d. b. g., s. q. c., c. d., used.
Millers, Whitney hand type, (3); motor driven, d. c., 220 v., (2) used.

FOR SALE BY

E. L. Essley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.

DRILL PRESSES.

24″ No. 25 Foote-Burt hvy. duty.
22″ G. & E. sliding head, (2).
4 sp. Allen high speed b. b. drill.
6 sp. Leland Gifford h. s.,b. b. drill.

LATHES.

10″x4′ Reed.
18″x8′ Whitcomb Blaisdell, q. c. g.
18″x10′ Prentice, q. c. g.
20′ x10′ Putnam.
22″x12′ Greaves-Klusman.
24″x12′ Lodge & Shipley, q. c. g.
30″x14′ Niles.
32″x24′ Fay & Scott.

MISCELLANEOUS.

Bolt cutter, ½″ Acme, single head.
Boring mill, 34″ Colburn vertical.
Broaching machine, No. 2 Lapointe.
Gear cutter, No. 3 B. & S. auto.
Grinder, No. 3 B. & S. plain.
Grinder, 8″x32″ Landis plain.
Grinder, P. & W. vertical surface.
Grinder, 10″x26″ Ott univ.
Hammer, 800 lb.W.W., board drop.
Hammer, steam, 800 lb. Massillon.
Miller, No. 33 Kempsmith prod. type
Miller, No. 2 Milwaukee universal.
Planer, 32″x32″x8′ New Haven.
Planer, 36″x36″x8′ Betts.
Planer, 48″x60″x16′ Betts.
Planer, 38″x38″x8′ Niles.
Punch pr., No. 4 & 4½ Niagara,o. b. i.
Saw, Smith & Post cold saw.
Screw mach., No. 1 Garvin, pl. hd.
Screw mach., No. 3 Foster, pl. hd.
Screw mach., No. 4 Foster, pl. hd.
Screw mch., 2″x2½″ Cleveland auto.
Shaper, 18″ Niles, traveling head.
Turret lathe, 2″x24″ J. & L.
Turret lathe, No. 2 Pratt & W.
Turret lathe, 24″ Conradson.

FOR SALE BY

B. C. Allen Machinery Co., 104 S. Clinton St., Chicago

Arbor press, 30 ton.....$ 110.
Arbor press, No. 7 bench..... 50.
Bolt cutter, 1″ with dies..... 75.
Bolt cutter, 3″ National..... 350.
Brake, 8′ Steel..... 180.
Brake, 4′ D. & K. steel..... 90.
Die grinder, LaSalle..... 100.
Drill press, 14″2 tables..... 75.
Drill press, 20″ w. & l..... 90.
Drill press, 20″ b. g..... 125.
Drill press, Avey bench, h. s.... 110.
Drill press,24″Barnes,b.g.,p.f. 245.
Drill press,28″Barnes,b.g.,p.f. 425.
Drill press, 34″Barnes, sld.hd. 500.
Drill press, 36″ sld. head, t. a. 725.
Drill press, Barnes 4 sp..... 650.
Drill press, 3-sp. sen..... 250.
Drill press, 4-sp. sen..... 350.
Grinders, all sizes.
Lathe, 10″x4′ Myers, new..... 225.
Lathe, 11″x5′ Myers, new..... 325.
Lathe, 12″x5′ Sebastian..... 250.
Lathe,13″x5′Willard,3stepcone 350.
Lathe, 14″x6′ Davis..... 275.
Lathe, 16″x8′ Greaves & K..... 460.
Lathe, 18″x8′ LeBlond.....$ 550.
Lathe, 18″x8′ Morris, with tur. 650.
Miller, Fox, plain..... 350.
Miller, 20x7x17 Oesterlein..... 600.
Miller, No. 4 Cincinnati pl..... 1600.
Miller, No. 4 B. & S. plain..... 2000.
Pipe mach., 2″ Jareck..... 225.
Pipe mach ,2″ B. & Keeler.... 175.
Planer, 20″x3′..... 375.
Planer, 24″x24″x7′ Gray..... 1000.
Planer, 40″x40″x12′Ohio 3 hds. 2000.
Punch press, No. 1, not inc.... 150.
Punch press, No. 19 Bliss..... 365.
Punch press, No. 3, new..... 400.
Punch press, No. 4 inc..... 400.
Punch press No.4 solid back, heavy..... 550.
Shaper, 14″ Flather pl..... 450.
Shaper, 16″ Barker b. g. crank 575.
Shaper, 16″ Q. City b. g. crank 675.
Shaper, 20″ Averbeck b. g. cr. 950.
Square shear, 30″..... 75.
Square shear, 36″..... 125.
Square shear,48″ pwr.,14gauge 625.

Several car loads of lathes and other machines at cut prices.

FOR SALE BY

Tranter Manufacturing Co., 105 Water St., Pittsburgh, Pa.

TURRET LATHE AND EQUIPMENT.

1—2x24 Jones & Lamson motor driven Turret Lathe; 5—tool heads; 1—12", 3—jaw chuck; 1—collet stand and collets ⅜" to 2½"; 1—5 h. p. Crocker-Wheeler motor; 1—starting box for motor; 1—No. 1 Little Giant auxiliary screw drill chuck; 3—bar stock rests; 1—1¼" style "A" Ideal die holder; 12—sets of dies, ⅜" to 1¼" for Ideal holder.

MISCELLANEOUS.

Engine lathe, 18", 8' bed.
Gear cutter, 18"x4" No. 13 Brown & Sharpe.
Grinder, Blount wet emery wheel, and countershaft.
Hoisting crane, No. 3 Canton.
Planer, 8'.

FOR SALE BY

A. M. Stoehr Machinery Co., 844 North Wells St., Chicago, Ill.

Bolt cutter, ½" & 1" capacity.
Brake, 11' power, ½" capacity.
Buffers and grinders, all sizes.
Chain hoist ½ & ½ ton, (50).
Compressors, steam. & belt drive.
Cut-off machines, Davis, (6).
Drill, 20" Barnes, 4-spdl., p. f., b. g.
Drill, 4, 5 & 6-spdl. Allen h. s.
Gear hobber, No. 3 Barber-Colman.
Grinder, No. 10 Besly, disk.
Keyseater, Davis, ¼" capacity.
Kiln, No. 7 Caulkins Revelation.
Lathes, 50 different sizes.
Milling mches., 25 Wisconsin, hand, 40 Fox No. 3½, 10 Hendey, 20 Corogues, also others.
Oil extractor, 26" Troy.
Punch press, No. 4 Rice, s. back.
Punch presses, No. 2 American Can.
Punch presses, No. 18 Bliss & others.
Reducing press, No. 60½ Bliss.
Reducing press, 856 & 857 Toledo.
Screw machs., W. & S. No. 4, (8).
Screw machs., S. & K. No. 4, (10).
Shear, 48" Bliss, power, ½" cap.
Tinners' rolls, shears & tools.

FOR SALE BY

H. D. Warner, 57 May St., Hartford, Conn.

Annealingfur., large, foranneal-ing stampings in large lots	$1200.	Milling machines, Whitney hand, (20) each	$ 150.
Automatic, 1½" Cleveland	350.	Milling mches., 12" Pratt & W. light auto., receding & quick return table, (12) each	400.
Automatics, 3¼" Cleveland, (2) each	1300.	Milling machines, No. 7-H Becker-Lincoln type, (6) ea.	350.
Automatics, 9/16" Acme mul-tiple-spindle, (4) each	300.	Milling machines, No. 2 Pratt & W., Lincoln type, (5). each	100.
Automatics, No. 55 1⅜" mul-tiple spindle	1000.	Milling machines, No. 12 Pratt & W., Lincoln type, (6) each	250.
Automatics, 3¼" Gridley, (2). each	1000.	Planer, Pond 48" wide.	
Boring mill, 60" Sellers vert.		Presses, No. 1½ V. & O. (3).	
Boring mill, 51" Niles vert.		Press, Perkins back geared, double action cam, weight about 22,000 lbs., comparative to Bliss No. 6 cam dbl. action.	3500.
Buffing machines, automatic, (20).		Press, No. 73½ Bliss back grd., nearly new	1750.
Chucking machines, No. 24 4-spdl. New Britain, (6) each	2600.	Shaper, Fitchburg 20" trav. hd.	500.
Die sinker, Pratt & Whitney old type No. 2	350.	Shaper, 26" Stockbridge.	
Drill, Barnes horizontal.		Slitting shear, Morgan, lrge. pl.	
Drill press, 3-spdl. Taylor & F.	200.	Slitting mche., 16" Torrington.	800.
Gear cutter, 3"x36" B. & S.		Squaring shear, Ohl, 10' pwr.	1000.
Grinder, 10"x72" Norton pl.		Straightening machine, New-bold, 9 rolls.	
Grinder, Blanchard vertical.		Welder, butt, Toledo, ½" capacity.	
Lathe, 30" American.		Welder, spot, Toledo, ½" capacity.	
Lathe, 2"x24" J. & L. turret.			
Lathe, Libby turret, motor dr.			
Millers, Becker large hand, (5) each	125.		

SECOND-HAND MACHINERY

FOR SALE BY

Kemp Machinery Co., 215 N. Calvert St., Baltimore, Md.

Grinder, 10″x24″ Diamond, cylindrical, new ..... $ 900.
Lathe, 25″x10′ Crawford 3-step cone, d.b.g., practically as good as new 1,750.
Milling mch., No. 5 Brown & Sharpe plain, cone type, first-class second-hand condition, f. o. b. Baltimore ..... 1,750.
Planer, 36″x36″x10′ Wilson, with steel gearing and rack, two heads on crossrail. In first class condition. Price f. o. b. Baltimore ..... 2,800.
Planer, 36″x36″x18′ G. A. Gray, extra heavy type, built for frog and switch work. Price ..... 3,000.
Screw machines, No. 3 Chicago automatic, with equipment; condition, first-class, (4). Price, each, f. o. b. Baltimore ..... 575.
Also a large quantity of other Machine Tools and Woodworking Machinery.

HOW

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The above statement is the result of careful mail inquiries directed to thousands of the larger tool-using concerns.

Machinery and Equipment For Sale

Hudson Motor Car Company

DETROIT, MICH.

Prices and Complete Information upon Request

DESCRIPTION	CONDITION
1—⅞x1¼ Model C Cleveland Automatic (Rotary Tilting Magazine)	Good
2—No. 2 Berlin Wall Radial DRILLS, with special built tapping attach.	Good
Wall Radial DRILL with 5' Arm	Good
1—No. 1 Easley Bench FILING MACHINE and countershaft	New
2—No. 1 Adams "Farwell" GEAR HOBBERS, all standard equipment	New
Schuchart & Schutte Automatic TOOTH ROUNDER	Good
6'x15" Model "B" Fitchburg Cylindrical GRINDER	Good
2—9'x12" Low Speed Sundstrand LATHES, with tailstock	Good
Curtis & Marble CLOTH MEASURING MACHINE, with motor	Good
No. SB—Becker Vertical Rotary MILLING MACHINE	Good
No. 80—5/16" Giant Vertical RIVET SPINNER	Good
Pratt & Whitney 3"x36" HAND SCREW MACHINE, 3-step cone head, friction back gear, power feed to cross slide and turret, 15½" hex. turret, quick change feed gears, oil pump & pan bed, triple friction countershaft and 3-jawed universal chuck	Fair
14" Garvin Hand SCREW MACHINE, power feed to turret, hand cut-off	Fair
2—2½" Dreses Hand SCREW MACHINES, with power feed to turret and hand cut-off	Fair
2¼" Dreses Hand SCREW MACHINE, with geared head, power feed to turret, hand cut-off and 3-jawed universal chuck	Fair
1—1½" Dreses Hand Screw Machine	Good
No. 2 Foster Hand SCREW MACHINE, with plain head, hand feed to turret and ratchet cut-off	Good
Pettingill ROTARY SHEAR	Good
Crescent DISH WASHER, with 1½ h. p. motor	Good
No. 6-E Fox Universal WOOD TRIMMER	Good
2—Puritan Cushion SEWING MACHINES	Good
5—81-12 Singer SEWING MACHINES	Good
3—121-1 Singer SEWING MACHINES	Good
44-4 Singer SEWING MACHINE	Good
21 W-180 Singer SEWING MACHINE	Good
1 H. Day 48" PAINT MILL	Good
No. N-1 CEMENT GUN	Good
Portable VISE STAND, Western Tool & Mfg. Co.	Good
1-Ton Link-Belt CHAIN HOIST	Good
Fortuna SKIVING MACHINE	Good
Single Arc WELDING MACHINE, 220 v., a. c.	A-1
6-Arc WELDING MACHINE, complete with main control panel and excitation, 5 operators' panels	A-1
No. 1 DUPLICATOR (Duplicator Mfg. Co.)	Good
Detroit DYNAMOMETER	Good
Alden Absorption DYNAMOMETER	Good
3—No. 3 Buffalo Forge Co. BLOWERS, Belt-driven	Good
No. 35 Connersville BLOWER	Good
2—No. 50 Connersville BLOWERS	Good
2—10x24 Northern Engineering Co. AIR HOISTS	Good
3—6x48 Curtis Pneumatic Machine Co. AIR HOISTS	Good
8x36 Curtis Pneumatic Machine Co. AIR HOIST	Good
10x60 Curtis Pneumatic Machine Co. AIR HOIST	Good
Chicago Pneumatic Tool Co. AIR motor-driven HOIST	Good

HESITATE—NO LONGER

MAKE YOUR SELECTION AT ONCE

The prices on these NEW and USED Machine Tools for immediate shipment have been made low enough to induce immediate action and are worthy of your special attention.

USED TOOLS

BORING MILLS (Upright)

10' Swing Niles heavy pattern, 2 heads.

BORING MILLS (Horizontal)

4¼" bar Niles, Knee type.
4½" bar, Bement-Miles, knee type.
4" bar, Niles, knee type.
3" bar, Betts, knee type.

RADIAL DRILLS

5' Arm, Dreses, cone-drive.
4' Arm, Bickford, speed-box.
4' Arm, Dreses, cone-drive.

TURRET LATHES AND SCREW MACHINES

2x24 Jones & Lamson (2) Flat Turret sliding-head, chucking and bar equipment.
3x36 Jones & Lamson Flat Turret, sliding-head, bar equipment.
Hartford Automatic Screw Machine.
20" Potter & Johnston Chucking and Turning Machines (2) with 2" hollow-spindle.
28" Pond, "Rigid type" rapid traverse to turret, 4" hollow-spindle.
21" Gisholt, swing in gap 32", like new.

GEAR CUTTERS

18" Gleason Bevel Gear Planer, with full equipment.
30" G. & E., spur and bevel.

PLANERS

48"x48"x15' Pond M. T. Co., 2 heads.
48"x48"x15' Wm. Sellers & Co., 3 heads.
48" Rotary Planer, Newton.

LATHES

3¼"x60" Lo-Swing, Fitchburg.
36"x14' Bridgeford, grd. hd., quick-change, motor-drive.
36"x16' Putman.
36"x20' Putman.
50"x13' American, Tr.-grd., qck.-ch., (3).
50"x20' Johnson, triple-geared.
50"x60' Johnson, triple-geared.
52"x20' Pond M. T. Co., triple-geared.
54"x21' Pond, triple-geared.
68"x18' New Haven, triple-geared.
DBL.-SPINDLE LATHES (3) slightly used—26-48" swing, 12' bed. McCabe, at a price equivalent to a 26" Lathe, but giving you the additional capacity of a 48" Triple-geared Lathe, as well.
DOUBLE-SPINDLE LATHE, 38-60" Swing, 26' bed, 20' between centers.

SLOTTERS

24" stroke, (2) Niles-Bement-Pond Co.'s (Bement-Miles Works) with automatic cross, side and circular feeds to the tables, full equipment, complete for motor-drive, including motors.

MILLING MACHINES (Vertical)

No. 5 "Brown & Sharpe," automatic feed to table 52".
No. 2 "Cincinnati."

MILLING MACHINES (Plain)

No. 3 "Cincinnati" (3), working surface of table 45"x12", overhanging arm, etc.
six-roll type, three top, three bottom, for straightening round bars 1¼" to 4½", any length.
Cutting-off and Centering Machine, "Bement-Miles," for cutting both ends at same time of axles and shafts up to 9" dia.
Traveling Hd. Shaper, 12" str., Fitchburg.

PUNCHES AND SHEARS

50" New McCabe, single end, hvy. pattern.
42" Gap, Hilles & Jones, No. 4, single end; capacity for punching 1½" hole thru 1"; arranged for motor drive including motor.
36" Gap, Long & Allstater, dbl. end; cap. for punching 1½" hole thru 1" belt driven.

table 45"x12", overhanging arm, etc.

same time of axles and shafts up to 9" dia.
Traveling Hd. Shaper, 12" str., Fitchburg.

36" Gap, Long & Allstater, dbl. end; cap. for punching 1¼" hole thru 1" belt driven.

o.22"Becker-Brainerd." working surface of table, 48"x14", overhanging arm, etc.
No. 7 "Becker-Brainerd," manufact's type.
Keyseat Milling Machine, Newton, horiz., and vertical spindles, table 60"x12".

MILLING MACHINES—LINCOLN TYPE

No. 5 Hendey, qk. ch. fd., Mfg. type.

GRINDERS

Universal, "Landis," 16" swing, 60" cent.
Universal, "Landis," 10" swing, 30" cent.
Universal, "Iroquois," 12" sw., 36" cent.
Plain Roll Gr., tbl. 66"x12". Bridgeport.

OTHER TOOLS

Crankshaft and Forge Cold Saw, equipped with one 30" and three 24" inserted tooth saw blades, capacity for cutting up to 9" round, "Espen-Lucas," head with saw has travel of 24".
Shaft Straightening Machine, "Medart,"

Special Column Shaper.
Bolt Header, Burdick, 1½" capacity.
Pulleys (20) 30"x8"x3 7/16".
Vertical Steam Engine—Horizontal Eng. Gas Engine, 15 h. p., Fairbanks-Morse.
Vertical Hydraulic Press, cylinder 14" diameter 12" stroke.
20-ton Gantry Crane, 42' span; length of bridge 54'; rail base to floor 17'.
20-ton Air Crane, with 5-ton hoist; travel across 24'; travel back about 30'; complete with rails.

HORIZONTAL PUNCH

60" Gap, Hilles & Jones, No. 6; capacity for punching 3½" holes thru 1" plate; wt. 68,000 lbs.; arranged for motor drive, but not inc. motor; absolutely like new.

AIR RIVETER

19" gap, "Albree" type; capacity 1¼" rivets.

Portable Punch—Pels.

BENDING ROLLS

14' 2" between housings, drop end, center support for lower rolls, "Hilles & Jones," modern style; top roll, 11" diameter, two lower rolls 8" (one grooved); friction clutch pulleys.

PLATE PLANERS.

14' 2Q between housings "Hilles & Jones," with open-end housing, so that any length can be planed by re-setting.

HYDRAULIC RIVETING EQUIP.

8' gap, "Bement-Miles" Bull Riveter, with piston and ram for accumulator, overhead crane, hoist, etc.; capacity for driving up to 1¼" rivets.

183

NEW TOOLS—Immediate Shipment

NEW LATHES

35 Machines in stock—all sizes—16" to 50" swing.
Greater dependability cannot be found in any New Lathes built. McCabe's reputation for manufacturing High Grade lathes has been well known for years, and McCabe's policy is to maintain that standard always. Thousands of these machines now in operation.

5—16"x 6' bed, 2' 6" between centers.
3—16"x 8' bed, 4' 6" between centers.
2—16"x10' bed, 6' 6" between centers.
3—18"x 8' bed, 4' 4" between centers.
6—18"x10' bed, 6' 4" between centers.
3—18"x12' bed, 8' 4" between centers.
2—21"x 8' bed, 4' 4" between centers.
1—21"x10' bed, 6' 4" between centers.
3—21"x12' bed, 8' 4" between centers.
1—21"x14' bed, 10' 4" between centers.
1—29"x16' bed, 10' 6" between centers.
1—32"x14' bed, 7' between centers.
1—32"x16' bed, 9' between centers.
1—32"x18' bed, 11' between centers.
1—32"x20' bed, 13' between centers.
1—36"x18' bed, 11' between centers.
3—50"x13½' bed, "American Tool Works" triple geared, quick change gear box, at a big reduction from the regular new selling price.

NEW SHAPERS

Six in stock—12" to 25" stroke.
1—12" stroke, plain.
1—14" stroke, plain.
2—16" stroke, plain.
2—25" stroke, back geared.

NEW RADIAL DRILLS

Eleven in stock
5—2½' Arms, speed box, single pulley drive.
5—4' Arms, speed box, single pulley drive.
1—3' Arms, speedy sensitive, tapping att.

NEW BENDING ROLLS

Three sets in stock—10'2" between housings. LATEST "IMPROVED TYPE," HVY. PATTERN—10' 2" between housings; drop end; rolls set in "pyramid" form; center support; top roll 10½" diam.; two lower rolls 8" diam. (one grooved); capacity ½" plate; weight about 20,000 lbs.; arranged for either belt or motor drive.

J. J. McCabe Lathe & Machinery Corp., 149 Broadway, New York City

Immediate Delivery

Priced to Move

MILLERS

10 Becker No. 7H Lincolns.
2 Type "A" Briggs, excellent.
1 Garvin No. 16 Plain, 60" table feed.
10 Hendey No. 4 Lincolns.
1 Hendey No. 5 Lincoln.
10 Victor-Loew Lincolns.
10 Pratt & Whitney 10" Semi-Autos.
9 Pratt & Whitney 4" Spline.
6 Pratt & Whitney 2" Double Spline.

SCREW MACHINES

1 1¼" Chicago Full Auto., new.
2 3¼" Gridley Single Spindle.
3 No. 52 National Acmes.
3 No. 53 National Acmes.

GRINDERS

3 Fitchburg, 6x15 Plain, cheap.
2 Landis No. 1½ Universals.
1 6x48 Pratt & Whitney Plain Cylindrical.
1 Queen City 12x36 Plain, self-contained.

MISCELLANEOUS

6 Chicago Threaders, must go!
1 Dreses 4' Plain Radial, very good.
4 New Britain 5-spindle Autos., 1¼x7".
6 5A Potter & Johnston Autos.
25 6A Potter & Johnston Autos., ask details.
1 Pratt & Whitney Planer, 24x30x15' Platen.

Industrial Machinery Corporation

147 Provost St., Jersey City, N. J.

New Machinery For Sale

In Stock at Chicago and New York

Lathes

26"x12' Wickes, q. c. g., d. b. g.
24"x13' Chard, q. c. g., d. b. g.
20"x11' Chard, q. c. g., d. b. g., (2).
20"x10' Wickes, q. c. g., d. b. g.
16"x6' Whitcomb-Blaisdell.
14"x 8' Cisco, q. c. g., d. b. g.
12"x 5' 6" Davis tool room,
6"x30" and 6"x36" Dalton bench.
Full line, Rivett precision bench.
Full line Stark precision bench.

Drilling Machines

4' Western plain radial.
3' Wisconsin sensitive radial.
32" Cleveland sliding head.
28" Cleveland sliding head.
25" Cleveland upright.
23½" Cleveland, upright.
23" Snyder upright.
22½" Cleveland upright.
21" Cleveland upright, (5).
20" Wisconsin, all-geared, (2).
20" Canedy-Otto, upright, (4).
Belt and motor driven bench.
Van Dorn portable electric.

Boring and Drilling Machines

No. 9 Pawling & Harnischfeger, (2).
No. 12 Pawling & Harnischfeger.

Milling Machines

No. 2 Cleveland universal.
No. 2-B Fox plain.
Nos. 1-A, 1-B and 0-B Fox plain.
Burke bench.

Grinders

No. 3 Modern universal.
No. 1 Wilmarth & Morman univ.
Lafayette universal.
10"x32" Ott universal.
No. 103 Rivett internal.
No. 2 Reid surface.
6"x6" Ott internal.
Webster & Perks, (various sizes).
No. 1 Norton cutter and tool.
Grand Rapids drill—various sizes.
Partridge floor stands, (all sizes).
Strand electric, flexible shaft.
Dumore, (all sizes).

Shapers

24" Milwaukee.
20" Milwaukee heavy duty.
16" Milwaukee.
7" Rhodes horizontal.

Hack Saws

Peerless, (all sizes).
No. 1 Racine.
6"x6" Starrett.
6"x6" Economy.

Miscellaneous

Arbor presses, Atlas, all sizes.
Buffing machine, No. 2 Blount.
Filing machines, Nos. 2 & 3 Barry.
Press, Lebanon, foot.
Shear, 18-H Lenox, throatless.
Tinners' rolls, Pexto.

USED MISCELLANEOUS

Cold Saw, No. 15 Lea Simplex.
Lathe, 14"x5' Dreses Monitor, (2).
Lathe, 24" Steinle turret.
Miller, No. 1 Farwell.

Dale Machinery Co., Inc.

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DALE-BREWSTER MACHINERY CO., INC.

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Address all inquiries attention Department A

Machine Tools

For Sale By

HARRIS BROTHERS COMPANY

1475 W. 35th St., CHICAGO, ILL.

Engine Lathes.

96"x36' Fifield, 24' centers, trip. grd.
66"x22' Fitchburg, trip. geared.
48"x30' L. W. Pond, trip. geared.
38"x14' American, trip. geared.
36"x24' Putnam.
36"x24' Pond, grd. hd., motor drive.
36"x21' Pond, grd. hd., motor drive.
30"x16' LeBlond,q.c.3step,d.b.g.,(3)
30"x12' Niles.
27"x10' Lodge & Davis.
26"x15' Niles B. P., q. c., 3 step, d. b. g., taper attached, (5).
24"x21' Fitchburg, with taper.
24"x12' Fitchburg.
24"x10' Whitcomb Blaisdell, q. c.
22"x18' Fitchburg with taper.
20"x20' Putnam.
20"x 8' American Tool Wks.,q.c.(10)
20"x 6' Schumacher Boye.
18"x 8' Cincinnati.
18"x 8' Milwaukee.
18"x 8' Sidney.
18"x 6' Fay & Scott.
16"x 6' Cincinnati.
48" Niles double head car wheel lathe, 2 carriages.
34"x7' Fitchburg lo-swing, geared head, double carriage.
8"x9' Fitchburg lo-swing, geared head, three carriages, (2).

Pulley Lathes.

With front and back carriages and two tool slides.

40" Pond and 50" Niles.
26" Davis Furber.

Turret Lathes, Bar and Chucking.

24" Steinle, turret tool post on carriage and hex. turret on bed, rapid traverse.
24" Gisholt, same. (10).
28" Pond, same, (2).
24" W. P. Davis, (2).
3"x36" Jones & Lamson, bar and chucking outfits.
14" Canada, 3-hole set-over tur.,(10).
18" Milwaukee, turret on bed. (10).
8" No. 1 Pratt & Whitney hand screw mach., 7/16" auto. ck. cap.
American 20"x8' bed, quick change lathes, (10).
Canada 26"x10' bed, qk. ch. lathe.
Screw machines, Gridley automatic, single spindle, 3¾" capacity. (16).
Warner & Swasey No. 3 single pulley drive turret lathe, with side carriage and turret on bed.

Milling Machines.

250 Hendy No. 4.
250 Becker No. 7H.
6 INGERSOLL (new) 24"x24"x12' HEAVY DUTY HORIZONTAL SLAB MILLING MCHS.
30x24x10 INGERSOLL with 2 vertical heads.
48x36x18 INGERSOLL with 4 vertical heads.
No. 3 Brown & Sharpe vertical.
Niles vertical, 48" swing, compound table and rotary.
No. 5 Becker & No. 22 Garvin vert.
Newton vertical, 33" swing, comp. table and rotary.
Ingersoll, planer bed,dble. housing, adjustable rail,2 vert. hds.36x36x10.
Pedrick & Ayer univ., 36" table fd.
No. 3 heavy LeBlond univ., dividing head, fully equipped.
Hendey Lincoln, 20" auto. fd. (25).
Lees Bradner No. 12 External Thread Milling Machine long bed type, 10" diam., work by 8' 6" between centers.

Available Now!

For Sale By

HARRIS BROTHERS COMPANY

1475 W. 35th St., CHICAGO, ILL.

Gear Cutters, Keyseaters, Grinders.

Morton, 18" stroke, for 1½" wide.
Morton, 24" stroke, for 2½" wide.
12"x36" Fitchburg plain, (3).
9"x15" Ford Smith plain.
20"x72" Landis universal.
Cincinnati universal tool.
10x48 B. & S. plain grinder.
16x60 Landis crank shaft grinder.
No. 60 Heald cylinder grinder.
Plain surface grinder.
Grinder 6x32 Norton Cylindrical.
AMERICAN BLOWER COMPANY, Serroco No. 6, double inlet 36", outlet 36".
Quadruple Gear Cutters. 25,000 cu. Ft. of Air per minute. Can be used for Cooling, Heating or similar purposes.

Hammers, Plate Bending Rolls, Punch Presses.

Erie 800 lbs. single frame. (2).
Erie 1,500 lbs. single frame.
80 lb. L. & A. (Bradley type), helve.
1000 lb. Lennox, friction board drop.
1250 lb. Massillon, steam drop.
6' New Doty, capacity 1" plate.
8' Lennox, capacity ½" plate.
30" O. C. sgl. end cap. ½"x4".
Wiener T40 shear for 15"-1" Beams, 4"x4" angle, wt. 20,000 lbs.
No. 55 D. G. G. Ferracute, straight sided, (2).
No. 56 D.G.G. Ferracute, str. sided.
No. 27 Bliss, knuckle joint.
Hydraulic presses, accumulators and pumps.
Ferracute E57 Vertical Straight Side Bed, weight each, 140,000 pounds, Punch Presses, (2).

Drill Presses and Boring Machines.

8-spdl. Baush. univ. adjustable 20" circular head, capacity 1".
4-spindle Foote-Burt straight line adjustable, capacity 1".
4' Western full universal.
6-spdl. Slate sens. auto. cam feed.
Foote-Burt 2 spdl. adjustable vert.

Planers, Shapers and Slotters.

24"x24"x5' Gray.
38"x38"x12' Niles, 2 heads.
20" Pedrick & Ayer, 2 tables.
24" Hendey.
12" Putnam rotary table slotter.
18" Betts rotary table slotter.
18" & 20" Niles rotary table slotters.

Miscellaneous.

Bolt cutter, ⅝" Adams, 2-spindle.
Bolt cutter, 1" Acme, 4-spindle.
Centering machine 6" Pratt & W.
Centering machine, 9" Whiton.
Cutting-off machines, for 2½, 3", 4" & 6" pipe and shafting.
Motors, 8 Westinghouse. 440 volt. 60 cycle, 3 phase, speed 514 r. p. m., Type C.C.L. squirrel cage, with base, with starters.
Nut facing machines.
Nut tapper, Acme 4-spdl. 1½" vert.
Pipe threaders, Curtis 2-4 & 6.
Pumps. Logeman Brothers horizontal triplex plunger pump, 1,500 lbs. pressure, 2½"x12" plungers, (2).
Pump, Hydraulic Machine Company vertical triplex, 1,500 lbs. pressure, 2½"x8" plungers.
Pumps, McGowan horizontal, duplex, 18x30x14, (2).
Pumps, Epping Carpenter hor. duplex, steam, 8x30x12 plungers, (2).
Saw, 10" Newton, cold metal.
Thread rollers, No. 50, Waterbury (2).

FIVE

Practically New

10x50 Norton

Plain Grinders

Vonnegut Machinery Co.
Indianapolis, Ind.

FOR SALE

ENGINE LATHES

1—36x18 LeBlond, motor drive.
1—30x10 Lodge & Shipley, double back gear, quick change.
4—36x22 Lodge & Shipley, motor drive.

PLANERS

1—42x22 Flather, three heads.
1—48x22 Cincinnati, four heads.
1—72x60x20 Gray, four heads.

BORING MILLS

1—3½" bar Landis No. 35 horizontal.
1—4" bar Barrett horizontal.
1—5" bar Barrett horizontal.
5—Rooksby horizontal.
1—6" bar Barrett horizontal, 68" swing.
1—Grant, vertical car wheel, 44".

SLAB MILLERS

1—42x10 Ingersoll.
5—42x14 Ingersoll, two vertical heads.

MISCELLANEOUS

1—30 ton Case Crane.

Vonnegut Machinery Co.
Indianapolis, Indiana

Re-MANUFACTURED -(ORIGINATED BY US)- MACHINE TOOLS

REAL BARGAINS—Every Re-Manufactured machine is being offered at real bargain prices. In fact, we can sell our ReManufactured tools, which compare favorably with new, at prices lower than those of the ordinary used tools.

LATHES.

1—3″x60″ Fitchburg Lo-Swing.
8—8″x60″ Fitchburg Lo-Swing.
1—8″x84″ Fitchburg Lo-Swing.
1—Bridgeford heavy duty d. c. a.
21—14″x 6′ Reed ex.hvy.pl.turning.
7—16″x 6′ Reed.
1—16″x 7′ Reed.
12—17″x 6′ LeBlond mfgr's. auto.
21—18″x 8′ Boye & Emmes, belt fd.
8—18″x 8′ Boye & Emmes. q. c. g.
1—18″x10′ Whitcomb-B., gd. hd.
1—18″x12′ American, c. r., q. c. g.
21—19″x 8′ LeBlond, q. c. g., c. r.
28—19″x 8′ LeBlond, hex. carr. tur.
31—19″x 8′ LeBlond, p. f. turret.
14—20″x 8′ LeBlond, c. r., q. c. g.
98—20″x 8′ American, c. r., q. c. g.
12—20″x 8′ American, p. f. turret.
3—20″x 8′ American. motor arr.
3—20″x10′ Lodge & S., grd. hd.
18—21″x10′ LeBlond, c. r., q. c. g.
34—21″x10′ LeBlond, carr. turret.
19—22″x 8′ Davenport.
1—22″x 8′ Lodge & S., motor arr.
9—25″x10′ LeBlond, c. r., q. c. g.
13—26″x 9′ Bridgeford, c. r., q. c. g.
105—26″x10′ Bridgeford, c. r., q. c. g.
23—26″x12′ Bridgeford, c. r., q. c. g.
2—26″x16′ Bridgeford, c. r., q. c. g.
2—26″x18′ Bridgeford, c. r., q. c. g.
2—26″x20′ Bridgeford, c. r., q. c. g.
32—26″x10′ Niles-B.-P., c. r., q. c. g.
1—26″x12′ Walcott, c. r., q. c. g.
1—26″x12′ Wickes, c. r.
1—26″x12′ Putnam, c. r., semi q. c. g.
3—26″x12′ Putnam, motor drive.
1—29″x14′ Walcott, c. r., q. c. g.
6—30″x11′ American, geared head.
1—30″x20′ American, geared head.
2—30″x11′ Houston, Stanwood & G.
1—30″x12′ American.
19—32″x12′ Pittsburg, c. r., q. c. g.
3—36″x14′ Johnson, triple geared.

LATHES—Continued.

2—36″x18′ Johnson, triple geared.
8—40″x12′ Fifield, triple geared.
1—40″x18′ Fifield, triple geared.
2—45″x24′ Pond, triple geared.

BORING MILLS.

1—34″ Bullard vertical.
1—10′ Niles vertical.
1—3½″ bar Binsse horizontal.
1—4″ bar Niles horizontal.
1—Beaman & Smith horiz., 2 heads.
1—2 spindle Espen Lucas. 2 heads.

SHAPERS AND PLANERS.

2—20″ Niles-Bement-Pond.
4—26″ Niles-Bement-P., motor dr.
4—26″ Niles-Bement-P., motor arr.
2—26″ Niles-Bement-Pond, belt dr.
2—28″ Kelley, back geared.
2—36″x13″x14′ N.-B.-P., frog & sw.
1—56″x56″x10′ Gray, 2 heads.
1—72″x72″x14′ Niles, 4 heads.
1—102″x72″x20′ Bement-M., 4 hds.

MILLERS.

59—No. 6 Whitney hand.
51—Garrigus hand.
23—Van Norman hand.
3—No. 2 Pratt & Whitney hand.
1—No. 2 Chicago hand, p. f.
1—No. 3 Chicago hand, p. f.
62—No. 3½ Fox, power feed.
1—Knight drill and milling.
1—No. 1 Dow plain.
1—No. 2 Becker vertical.
1—No. 2 Brown & Sharpe vertical.
2—No. 4-B Becker vertical.
2—No. 4 Cincinnati plain, s. p. d.
123—No. 4 Hendy Lincoln.
26—No. 4 Loew Victor Lincoln.
24—No. 12 Pratt & W. Lincoln.
42—No. 7-H Becker-Lincoln.
2—12″ Pratt & W. semi-automatic.
2—18″ Cincinnati automatic.
1—26″x 8′ Ingersoll, 3 hds., motor.
1—17″x10′ Beaman & Smith, 3 hds.
1—30″x12′ Newton slab, 2 spindles.

Write for our Green List describing these and many others

HILL, CLARKE & CO. OF CHICAGO

649 W. WASHINGTON BLVD., CHICAGO, ILL.

Looking for Millers?

WRITE US!

Hand Millers

1—No. 0 Bristol.
3—No. 1 U. S.

Universal Millers

1—No. 1 Kempsmith.
1—No. 1½-B Milwaukee.

Plain Millers

1—No. 0 LeBlond.
1—No. 20 Oesterlein.
1—No. 22 Garvin.
5—No. 25 Bilton.
1—No. 1½-B Milwaukee.
1—No. 2-B Milwaukee.
2—No. 3 Cincinnati.
8—No. 3 Kempsmith.
4—No. 4 Cincinnati.
2—No. 5 Brown & Sharpe.

Semi-Auto. Millers

5—18" Cincinnati.
1—18" Cincinnati Duplex.

Lincoln Type Millers

1—No. 7-H Becker.

Vertical Millers

1—No. 2 Cincinnati.
1—No. 4 Cincinnati.
1—No. 3 Becker.
1—No. A.B. Becker.
4—S. D. Becker 40" rotary table.
1—2-spindle Newton.
1—No. 1 Beaman & Smith Openside.

Planer Type Millers

1—24"x14"x20' Ingersoll, Double Head.
1—24"x24"x15' Ingersoll, 2 vertical, 2 horiz. heads.

Thread Millers

1—No. 4 Lees-Bradner.
3—6"x14" Pratt & Whitney.
11—No. 155 type "A" Taft-Pierce.

Immediate Shipment. Bargain Prices.

Peninsular Machinery Co.

279 E. Jefferson Ave., Detroit, Mich.

Second Hand Machine Tools

BORING MACHINES.

4" bar Detrick & Harvey floor type.
No. 2 Beaman & Smith, floor type, 4" spindle, motor drive.
4" bar, Binsse, table type.
2½" bar Bement-Niles horizontal.
No. 1—3" Lucas horizontal.
34" Colburn vertical, turret head.
38" Niles vertical, 2 heads.
42" Bullard vertical, 2 heads.

DRILLS.

1 spindle Henry & Wright b. b.
3-sp. Henry & Wright sens. b. b.
3 spindle Taylor & Fenn sensitive.
20" Prentice Bros. sliding head, b. g.
24" Pratt & Whitney, sliding head, b. g. and power feed.
42" Cinn.-Bick. sliding head, b. g., p. f., cone drive, tapping att.
No. 1 Rockford horizontal.
20" Baker Bros. style M, 4 h. p. mtr.
No. 310 Baker Bros. heavy duty.
6-sp. Hendey, pwr. feed to each spdl.
No. 30—12 spindle Baush multiple.
No. 12—8-spindle Natco multiple.
No. 12—12-spindle Natco multiple.
No. 22—16-spindle Natco multiple.

GRINDERS.

3"x18" Norton, plain cylindrical.
6"x32" Norton, plain cylindrical.
10"x48" B. & S. plain cylindrical.
10"x30" Landis plain cylindrical.
No. 18—12"x120" Landis plain cyl.
18"x96" Norton plain, self contained motor drive.
12"x40" Landis universal.
12"x80" Landis universal.
10" Garrigus rotary surface.
No. 11 Rivett oscillating.
No. 5 Rivett hand feed oscillating.
No. 34 Van Norman internal.
No. 4 Rivett internal.
20" Besly disc.
No. 6 A Bryant internal.
18" Ney double disc.

LATHES.

No. 5 Rivett bench, slide rest.
11x5 Seneca Falls, c. r., p. c. f.
13"x6" Willard c. r., p. c. f.
14"x6' Reed c. r., p. c. f., t. a.
16"x8' Flather, q. c., c. r., p. c. f.
18"x8' Prentice Bros. geared hd., ck.
18"x6' Hendey c. r., p. c. f., tap. att.
20"x19' Reed, c. r., p. c. f.
22"x8' Schumacher-Boye, c. r., p. c. f.
22"-24"x8' Lodge & Shipley selective head, manufacturing.
26"x12' Putnam, c. r., d. b. g.
32"x14' Hamilton, c. r., p. c. f.
38"x20' New Haven, c. r., p. c. f.
56"x24' Wood & Light, c. r., p. c. f.

MILLERS.

No. 14 Garvin plain.
Rivett hand, precision.
No. 2 Cincinnati plain, all feeds.
No. 2-A Kempsmith plain, b. g.
No. 1½ LeBlond univ., motor drive.
No. 3 Cincinnati high power vertical.
No. 4 Cincinnati high power vertical.
No. 4-B Becker vertical.
20"x20"x8' Ingersoll slab miller.
No. 12 B. & S. Manufacturing.

TURRET MACHINES.

16" Acme univ. friction back gear.
20" Steinle heavy duty, geared head.
20x10 Fay & Scott univ. turret lathe.
24x10 Lodge & Davis turret.
24" Gisholt turret, 6" hollow spdl.
Fay automatic turret lathe.
2"x24" J. & L. flat turret, bar equip.
3"x36" J. & L. chuck or bar equip.
¾" Bardons & Oliver turret, motor.
No. 2½ Garvin screw machine.
No. 3 Windsor w. f. screw mach.
¾"—4 spindle National Acme auto.
1⅛"—4 spindle National Acme auto.

MISCELLANEOUS.

Broaching mach., Nos. 4 & 5 J. N. Lapointe.
Compressor, 8x8 Clayton single air.
Gear cutter, 36"x9" B. & S. spur.
Pipe mche., No. 84 Curtis & Curtis.
Planer, 24x24x6 Flather, one head.
Planer, 30x30x8 Pond, 2 heads.
Planer, 30x30x8 Whitcomb-B., one hd.
Planer, 36x36x12 Cincinnati, 4 heads.
Planer, 36x30x14 Cincinnati, 3 heads.
Planer, 48x48x15 Sellers, 3 heads.
Planer, 60x60x14 Gleason, 2 heads.
Profiler, No. 13, P. & W., 1 spindle.
Shaper, 14" P. & W. crank.
Shaper, 15" Hendey friction.
Slotter, No. 3—14" stroke Betts.

HENRY PRENTISS & CO.

INCORPORATED

NEW YORK, N. Y. **Warehouse, JERSEY CITY**

Excellent Condition

These machines were recently purchased by us from a shop doing tool and gauge work, and they are in excellent condition

LATHES

2 10x5 PRATT & WHITNEY Tool Room Lathes, with elevating rest, taper attachment, oil pan, etc.
3 14x6 (actual swing 16") PRATT & WHITNEY Tool Room Lathes, compound elevating rest.
1 14x6 (actual swing 16") PRATT & WHITNEY Tool Room Lathe, compound elevating rest, taper attachment.
5 16x6 MONARCH Lathes, 3 step cone, double back geared head, quick change gear, compound rest.
1 14x8 AMERICAN Lathe, quick change gear, comp. rest, taper att.
1 16x6 MONARCH Lathe, quick change gear, comp. rest, taper att.
1 18x6 MONARCH Lathe, 3 step cone, double back geared head, quick change gear, compound rest.

MILLING MACHINES

1 No. 0, 18x6x15 BROWN & SHARPE Plain Milling Machine.
1 No. 2, 28x10x19 BROWN & SHARPE Cone Type Plain Back Geared Milling Machine.
1 No. 1, 22x12x18 BROWN & SHARPE Vertical Spindle Milling Machine.

GRINDERS

1 No. 13 BROWN & SHARPE Universal Tool & Cutter Grinder, automatic feed.
1 No. 1, 10x24 BROWN & SHARPE Univ. Cylindrical Grinder.
2 No 70 HEALD Internal Grinders.

SCREW MACHINES

1 No. 2 KENT-OWENS Plain Head Screw Machine, automatic chuck, wire feed, oil pan, pump, etc.
1 No. 4 KENT-OWENS Screw Machine, geared friction head, automatic chuck, power feed to turret, oil pan, pump, etc.

DRILLS

1 14" LELAND-GIFFORD Ball Bearing Sensitive Drill.
1 16" LELAND-GIFFORD Round Column, Sliding Head, High Speed Ball Bearing Sensitive Drill.

PLANER

1 24" CINCINNATI Planer, widened to 34", 7' table, 1 hd. on rail.

The Hess-Schenck Company

Cleveland, Ohio

Reliable Machine Tools from CINCINNATI

(The Machine Tool Center)

42" Colburn Boring Mill, 2 swivel heads, self-contained countershaft.
42" Bullard Boring Mill, 1 turret, 1 swivel head. Rapid traverse.
2½" Acme Double Head Bolt Cutter.
20x10 Schumacher & Boye, quick change double back geared, complete equipment.
34x15 Pittsburgh Engine Lathe, full equipment. Double Back Geared.
No. 2 Kempsmith Plain Milling Machine, Vertical attachment.
No. 3 Cincinnati, Plain Miller Dividing Heads. Full equipment.
No. 3 Brown & Sharpe Plain Milling Machine, single pulley, equal to new, $1500.
No. 2 Cincinnati Universal Cutter Grinder.
No. 4 Hilles & Jones Single End Punch and Shear.
17"x8' Sidney quick change double back geared Engine Lathe.

This is a partial list of machines we offer from Cincinnati Warehouses

Chester Bertolette Company

Offices: Commercial Tribune Building, Cincinnati, Ohio

PRESSES
Immediate Delivery

2—No. 77½ Bliss Straight Side, tie-rod frame 10", 12 & 18" str.
2—No. 51 Toledo Geared Arch.
1—No. 52 Toledo Geared Arch.
1—No. 167-A Consolidated double crank, tie-rod frame equal 7-B Bliss.
1—No. 65 Consolidated.
1—No. 2-W Buss Wiring.
1—No. 55-S Toledo Geared.
2—No. 55-DG Ferracute.
2—No. 56-DG Ferracute.
1—No. 46 Bliss Press.
1—6' Ohls Shear, ⅛" capacity.
1—8' Ohls Brake, ⅛" capacity.
1—Long Allstatter Mult. Punch, 7" shaft 96" between uprights.
2—24" Gould & Eberdt. Shapers.
1—No. 57 Toledo Sgl. Crank Tie Rod, jaw clutch Sgl. geared.
2—No. 78½ Bliss Straight Side, tie-rod frame 12, 14 and 22" str.
2 No. 76½ Bliss Straight Side, tie-rod frame, 8 and 16" stroke.
1—No. 27 Bliss Knuckle Joint.
2—No. 666 Toledo Knuckle Joint.
1—New No. SD-504 Ferracute D.C. Toggle Drawing, str. 36".
1—New No. SD-304 Ferracute D.C. Toggle Drawing, str. 24".
1—No. 2 Toledo Inc. Fly-wheel.
1—No. 3 Toledo Inc. Fly-wheel.
1—No. E-6 Ferracute Geared.
1—No. 72 Consolidated Fly-wheel.

D. C. Oviatt & Co., 401 Garfield Bank Bldg., CLEVELAND, OHIO

Presses, Sheet Metal and Can Machinery.

IN STOCK
For Immediate Delivery

BORING MILLS

No. 0 Giddings & Lewis horizontal.
60" Bullard, 2 plain heads.

DRILLING MACHINES

12" Leland-Gifford, h. s., ball bearing, single spindle.
16" Cleveland, h. s., b. b. drill.
6' Gang radial drill.
6' Prentice radial drill.

GEAR CUTTERS

20"x8' Gould & Eberhardt.
No. 3 Farwell gear hobber.

GRINDERS

Heald piston ring grinder.
No. 12 Brown & Sharpe universal.
6"x32" Norton.
8"x40" Morse.
14"x90" Norton.
No. 12 Modern.
No. 10 Besly disc grinder.
Diamond surface grinder.
Gisholt tool grinder.

LATHES

15"x 8' South Bend, compound rest.
12"x 5' Pratt & Whitney toolroom lathe.
16"x 6' Bradford, compound rest.
16"x 8' Hamilton style "A", taper and relieving attachment.
18"x10' Bradford, compound rest, double back gear.
32"x18' Bradford, compound rest.
Porter Cable Mfg. lathe.

MILLING MACHINES

No. 0 Rockford plain.
No. 2 LeBlond plain.
No. 5 Hendey, Lincoln type.
No. 6 Whitney hand.
Taylor & Fenn vertical.
No. 3-B Milwaukee plain.
No. 5-B Brown & Sharpe plain.
No. 3 Becker vertical.
No. 13 Brown & Sharpe.
12" P. & W. automatic.
Type "A" Briggs miller.
No. 32 Kempsmith.

SCREW MACHINES

No. 0 Foster, plain head, automatic chuck and wire feed.
No. 1 Foster, plain head, automatic chuck and wire feed.
No. 2 Foster, plain head, automatic chuck and wire feed.
No. 1 Pratt & Whitney, automatic chuck and wire feed.

TURRET LATHES

21" Gisholt.
24" Gisholt.
2"x24" Jones & Lamson.
Potter & Johnston.
24" Cleveland, automatic.
14" Warner & Swasey.

PRESSES

No. 3 Rockford, o. b. i.
No. 23 Toledo, double action.
No. 6 Eames arbor press.

Stocker-Rumely-Wachs Company

117-121 N. Jefferson Street
CHICAGO, ILL.

NEW TOOLS.

1—Walcott 24x10 Quick Change Gear, Double Back Gear Lathe.
1—Monarch 24x10 Quick Change Gear, Double Back Gr. Lathe.
1—Wood No. 2 Geared Friction Head Turret Lathe.
1—Garvin No. 21 Plain Milling Machine.
1—Fox No. 1-C Power Feed Milling Machine, back geared.
1—Briggs 42" style B Miller.
1—Modern 3" Cutting-Off Machine.
1—Weigel 21" High Duty Drill Press.

USED TOOLS.

1—Brown & Sharpe No. 1 Universal Grinder.
1—Cincinnati Bickford 4' Radial Drill.
2—Warner & Swasey used Hollow Hexagon Turret Lathe.
1—Monarch 14x6 Quick Change Gear, Double Back Gear Lathe.
1—Modern Cutting-Off Machine.
2—Bullard 21" Chucking Lathes.
2—Bridgeford 26" Chucking Lathes.
1—Hendey No. 2 Universal Milling Machine.
1—Wood No. 6 Geared Friction Head turret lathe complete.

These machines are all from our Syracuse warehouse.

BUFFALO 99 W. Genesee St. | ROCHESTER 306 Arlington Bldg. | SYRACUSE W. Fayette St.

Syracuse Supply Company

The Following High Grade Used Tools for Immediate Delivery

1—No. 2-62" Horizontal Boring & Drilling Machine, 4" bar, arranged for motor drive, with D. C. Motor; made by Niles-Bement-Pond Co., 95% new.
1—No. 0 Fosdick Horizontal Boring & Drilling Machine; longitudinal travel of spindle 26"; made by Giddings & Lewis; 95% new.
1—36"x36"x12' Woodward & Powell Planer, in excellent condition; four heads.
1—4' Bickford Radial Drill, gear box drive, in excellent working condition.
1—36"x36"x8' Pratt & Whitney Planer; two heads on rail, in good working condition; $1500.
1—30"x12' geared head American Lathe, compound rest, large hollow spindle, single pulley drive, with 30" four-jawed chuck fitted.

All the above tools are fully guaranteed. Money refunded if not satisfactory.

TERMS: One-third Cash with order, balance sight draft against bill of lading

Joseph Beal & Co.

465-471 Atlantic Ave., Boston, Mass.

David A. Wright

568 Washington Blvd., Chicago, Ill.

LATHES

No. 2 Niles axle, 8′ center.
No. 3 Niles axle, (new).
3½″x60″ Lo-Swing.
6″x60″ Lo-Swing.
8″x60″ Lo-Swing.
6″x84″ Lo-Swing.
8″x84″ Lo-Swing.
8″x108″ Lo-Swing.
14x6 Reed Prentice, h. d.
16-30x6 Putnam gap, 15″ chuck.
16x7 Oliver Tool Room, q. c. g.
16x8 Gisholt turret.
17x6 LeBlond, q. c. g., h. d.
18″ Libby 6-hole turret.
18x 8 Oliver tool room.
18x12 LeBlond, q. c. g.
20x 8 Cisco, q. c. g.
20x 8 Hamilton, s. q. c. g.
20x11 Cisco, q. c. g.
24x12 Cisco, q. c. g.
24x12 Gisholt turret.
24x 6′ Steinle turret, 6½″ hole.
30x12 Putnam, g.h., arranged for mo.
30x13′6″ Oliver, all-geared head.
42″ Niles car wheel.
52″ Niles car wheel.
50x20′ Fifield, triple geared.

SHAPERS

14″ Steptoe, b. g. crank.
16″ Milwaukee b. g. crank.
16″ Steptoe, b. g.
16″ Queen City b. g.
16″ Milwaukee b. g. crank.
16″ American b. g.
20″ Walcott b. g.
20″ Queen City b. g.
20″ Steptoe b. g.
24″ Lodge & Davis b. g.
24″ Queen City b. g.
24″ Ohio, h. d., b. g.

DRILLING MACHINES

20″ Canedy-Otto, lever feed.
20″ Champion, b. g., p. f.
20″ Buffalo, b. g., p. f.
22″ Superior, b. g., p. f., tapp. attach.
20″ Foote-Burt, h. d.
24″ Barnes, 2-spindle camel-back.
34″ Barnes, b. g., p. f.
36″ Mechanics, b. g., p. f.
24″ Morris radial, sq. p. drive.
24″ Fosdick, radial.
6 spindle Barnes gang.
6 spindle Allen, b. b., h. s.
10 spindle Natco multi., ⅜″ cap.
12 spindle P. & W. mult., ½″ cap.
27 spindle Baush mult., 1¼″ cap.
D-4 Colburn 24″, h. d.

SCREW MACHINES

No. 0 B. & S., slotting attachment.
No. 00 B. & S., slotting attachment.
No. 2 B. & S., lot equipment.
¼″ Chicago automatics.
No. 2 Bardons & Oliver, 1″ cap.
No. 4 Warner & Swasey, p. f.
⅜″ Cleveland automatic.
⅝″ Cleveland automatic.
1″ Cleveland automatic.
¾″ National Acme 4-spindle.
1″ Pratt & Whitney, wire feed.

MILLERS

3″ Lees-Bradner internal.
3″ Foster internal.
Model A. B. Becker, circular table.
No. 0 Steptoe plain, hand, p. f.
No. 24 Bilton plain, hand, p. f.
No. 1½ American plain b. g., p. f.
No. 12 Brown & Sharpe Mfg.
No. 1 Pratt & Wright, (bench).
No. 2 Pratt & Wright.
No. 2 M. R. Garvin universal.
No. 3 Kempsmith plain.
No. 3 LeBlond plain.

PUNCH PRESSES

No. 3 Morton, o. b. i.
No. 3 Adriance, o. b. i.
No. 3 R. & K., o. b. i.
No. 17 Bliss.
No. 18 Bliss, o. b. i.
No. 19 Bliss, o. b. i.
No. 21 Bliss, o. b. i.
No. 4 McDonald, o. b. i.
No 5½ Walsh, geared.
No. 65-N Bliss, double acting.
No. 68-W Bliss, double acting.
No. 68-C 2 Bliss, double acting.
No. 59½ Toledo, s. s.

GRINDERS

No. 14 Besly disc, ring wheels.
No. 60 Heald cylinder.
No. 1 W. & M. Surface.
Sterling cutter and reamer.
No. 190 Wells cutter and reamer.
6x 20 Fitchburg automatic plain.
10x30 Landis plain.
12x30 Fitchburg automatic plain.
12x36 Fitchburg automatic plain.
18x96 Brown & Sharpe plain.

MISCELLANEOUS

No. 2 Moore Screw Press.
2½″ Oster Pipe Machine.
3″ Bignall & Keeler Pipe Machine.
3″ Hurlbut-Rogers Cut-off Machine.
No. 2 Davis Keyseater.
24″ Bullard Boring Mill.
36″ Bullard Boring Mill.
52″ Baush Boring Mill.

Grand Rapids Specials

Broaching machine, keyway, No. 4 Burr.
Broaching machine, No. 2 J. N. LaPointe.
Cut-off mch., No. 4 Nutter-B.
Cut-off mch., No. 4 Cochrane-B.
Drill, 20" Barnes, all-geared.
Drill, 10-sp. Grand R. mult.
Grinder, 6-A Bryant, chucking.
Hammer, 125 lb. Kane & R., pwr.
Lathe, 18" x 10' Schumacher-B.
Lathe, 24" x 10' Schumacher-B.
Marking mch., No. 3 Dwight-S.
Planer, 30"x30"x8' Pond.
Profiler, No. 2-H Becker.
Punch, mult., No. 3 Kane & R.
Punch & sh., L-10 Rock River.
Radial, wall, No. 51 Canedy-Otto.
Radial, 3' Fosdick Holloway.
Sand blast outfits, A-6 Pangborn, (2).
Screw machine, 1-1/16" Cleveland automatic.
Screw mch., 2" Cleveland auto.
Shaper, 20" Smith & M., crank.
Shear, power sq., 96" Ohl, 16 ga.
Spline miller, 4" P. & W.
Turret lathes, 2x24 J. & L., (2).
Turret lathe, 3x36 J. & L.
Turret lathe, No. 5 Foster.
Welding outfit, 50 lb. Davis-Bournonville.

McMullen Machinery Company

"Everything in Shop Equipment" **Grand Rapids, Mich.**

A CHAIN

The advertisers in the Tool List pay Hitchcock. He sends you the Tool List free. You buy the articles advertised. The chain is complete.

BUT—

—suppose the advertisers do not know that you saw it in the Tool List—where does Hitchcock come in? When writing to advertisers, won't you kindly give Hitchcock credit?

Bertolette Machine Tool Co.

ENGINE LATHES

36"x14' Niles, face plate drive, 104" centers.
28"x15' Schumacher & Boye, quick change, 9' centers.
26"x12' Draper, 80" centers.
24"x14' Lodge & Shipley, quick change, taper attach., 9'6" centers.
24"x12' Lodge & Shipley, quick change, taper attach., 7' centers.
20"x10' Lodge & Shipley, quick change, 72" centers.
20"x 8' Lodge & Shipley, selective geared head, quick change, single pulley drive, 50" centers.

DRILLING MACHINES

5' Cincinnati Bickford Plain, tapping attachment, single pulley drive.
4½' Dreses Plain, cone drive.
4' Fosdick Plain, tapping attachment, single pulley drive.
3½' Baush Plain, cone drive.
28" Barnes, Back Geared, Sliding Head.
24" Gould & Eberhardt, Back Geared, Sliding Head.
22" Bickford, Back Geared, Sliding Head.

PLANERS and SHAPERS

36"x36"x10' Betts Planer, 2 heads.
30"x30"x 8' Niles Planer, 1 head.
24"x24"x 6' Pease Planer, 1 head.
22"x22"x 6' Pond Planer, 1 head.
24" Hendey Geared Shaper.
16" Hendey Geared Shaper.
16" NEW Cincinnati Barker Back Geared Crank Shaper.

GRINDERS

84" Diamond Heavy Face Grinder, motor driven, 30" wheel.
12"x36" Modern, Self Contained, single pulley drive.
No. 4 Brown & Sharpe, size 12"x60".

MILLING MACHINES

No. 2 Cincinnati Universal, geared head, single pulley drive.
No. 2 Cincinnati Plain, geared feeds.
No. 2 Brainard Universal, cone drive.

SLOTTERS and KEYSEATERS

9" Bement Slotter, rotary table 24" diameter.
6" Newton Slotter, rotary table 18" diameter.
No. 2 Baker Bros. Keyseater, 20½" stroke, capacity up to 2".

PIPE MACHINES and BOLT CUTTERS

6" Stoever Pipe Machine, NEW, dies 1⅛" to 6".
6" Curtis & Curtis, Hand, dies 2½" to 6".
1½" Putnam Bolt Cutter, quick opening die head, dies ¾" to 1½".

Office: 357 West Side Av.,

Machineshop and Warehouse 220-228 Orient Av.,

Jersey City, N. J.

New and Used Machinery

NEW

1—26x12′ 6″ Quick Change Geared Head Oliver Lathe.
1—18x10′ Quick Change, Double Back Geared Oliver Engine Lathe.
1—18x 8′ Quick Change, Double Back Geared Oliver Engine Lathe.
1—16x 7′ Quick Change, Double Back Geared Oliver Engine Lathe.
1—No. 2-B Open Type H. S. 4-Spindle Drill Press.
1—No. 2-B Open Type H. S. 2-Spindle Drill Press.
1—No. 1 Cleveland Miller.
1—15″ Potter & Johnston Shaper.
1—Wade-American Bench Lathe.
1—No. 4 Starke Bench Lathe.
1—No. 3 Starke Bench Lathe.
3—No. 1—6x6 Racine Metal Hack Saw Machines.
Full line Electric Drills and Grinders.

USED

1—No. 2 Klemm Metal Band Saw.
1—No. 1 Shinn Metal Band Saw.
3—No. 16 Bliss Horning Presses, with adjustable tables.
2—4″ Chicago Automatics.
1—No. 4½ Williams Cutting-Off Machine with regular equipment.
3—20″ Wheel and Lever Feed Drill Presses.
1—20″ B. G. Power Feed Drill Press.

W. L. ROMAINE MACHINERY CO.
214 SYCAMORE STREET, MILWAUKEE, WIS.

6 Exceptional Offerings

Gould & Eberhardt
Gear Cutter
12″x6″ Capacity. A-1 Condition.

Baker Bros.
Keyseaters
3 No. 0 Machines. Guaranteed A-1

Cincinnati
Gear Cutter
10″x26″ Cap. Practically New.

Cleveland
Screw Machine Automatic
Model "A" 2″-3½″. A-1 Cond.

"Rochester"
Gear Tooth Rounder
12″ Capacity. Practically New.

Cleveland
Screw Machine Automatic
Model "G" ⅜″-½″. A-1 Cond.

W. H. J. Fitzgerald & Co.
Boston, Mass.

In Stock For Immediate Delivery

Automatics And Turret Lathes

1—¾" Cleveland Model A Automatic.
1—1" Cleveland Model A Automatic.
2—No. 2 Pratt & Whitney Screw Machines, ⅝" wire feed.
1—2"x24" Jones & Lamson cone drive.

Boring And Drilling Machines

1—No. 12 P. & H. Horizontal Boring, Drilling & Milling Machine, latest type, motor driven.
1—60" Niles-Bement-Pond Horizontal Boring, Drilling & Milling Machine, latest type.
1—72" Bullard Vertical Boring & Turning Mill, 2 heads on cross rail.

Drilling Machines

6—Myers Sensitive Bench.
2—No. 28 Canedy-Otto Bench.
1—No. 101 Canedy-Otto Radial.
2—No. 26-16" Canedy-OttoSensitive.
3—No. 36-20" Canedy-Otto, b.g.,p.f.
1—3½' arm Canedy-Otto Radial.
1—Dwight-Slate 4-spindle b. g., p. f.

Grinders

1—No. 1 Norton Universal Tool and Cutter Grinder.
1—No. 2 Norton Universal Tool and Cutter Grinder, complete.
1—No. 2 LaSalle Automatic Surface Grinder.
1—No. 2 Manhattan Surface Grinder.
1—No. 70 Heald Grinder.

Hammers

1—1500 lb. Billings & Spencer Board Lift Drop Hammer.
1—1000 lb. Williams & White Board Lift Drop Hammer.
1—Cane & Rhodes 125 lb. Power Hammer.

Lathes

1—16"x 6' Davis.
1—16"x 6' Blair.
1—16"x 7' Union.
1—18"x 8' Greaves-Klusman.
1—18"x10' Robbins.
1—28"x11' Walcott.

Milling Machines

3—Pratt & Whitney Automatic Milling Machines.
1—No. 14½ Brainard Universal, complete, with dividing heads.
1—No. 1 Dow Milling Machine.

Air Compressors

1—8"x8" Clayton.
1—10"x10" Rand.

Miscellaneous

2—6"x6" Peerless High Speed Hack Saws.
1—9"x9" Peerless High Speed Hack Saw.
1—6"x6" Millers-Falls Hack Saw.
1—No. 3 Nicholson Arbor Press on stand.
1—Type A. Manhattan Screw Press.
6—No. 00 La Salle Bench Power Presses.
2—2 ton Canton Floor Cranes.
1—2" Jarecki Pipe Machine.
6—No. 00 Errington Tapping Chucks.
1—Each Nos. 1, 2, 3, 4 and 5 St. Louis Tapping Chucks.

We carry a complete line of Universal and Independent Lathe Chucks, and Barker Chucks.

The Morton Machinery Company

139 N. Third Street, Philadelphia, Pa.

Any Idle Equipment?

If you have any Machine Tools you do not need, this is a good time to sell them

Offer them to any of the dealers in Second-Hand Machinery who advertise in these pages. No doubt they can turn them into money for you to good advantage.

Or if you prefer to sell them direct to a user somewhere in the United States, an advertisement in Hitchcock's Machine Tool List will put them before all the plants in the country in which iron-working machinery is used. Rate, $5 for five lines or less; additional space 50 cents a line.

Hitchcock's Machine Tool List

A. H. HITCHCOCK, Publisher

1220-1235 Caxton Building, Chicago, Ill.

OUR GUARANTY MONEY BACK IF NOT SATISFIED

Drills—Radials

1—each 4′ and 5′ Universal Radial.
2—25″ Weigle, s. h., b. g., p. f.
4—Hoefer Drills, 21, 24, 26, 28″.
4′ Lodge & Davis Plain Radial.

Grinders

1—10x36″ Thompson Full Univ.
1—No. 2 Manhattan Surface (New).
1—Grand Rapids Drill, ⅛ to 2½″ cap.
1—Wells Cutter and Tool.
1—No. 2 Oakley Universal Cutter and Tool.
1—No. 1A Yankee Drill.
1—Used No. 2 Woods Cutter.

Shapers

1—18″ Used Lodge & Davis Crank.
2—16″ Streine B. G. (New).
4—16″ Whipp S. G. Crank (New).
1—20″ Ohio B. G. Crank (New).
1—Each 16, 18, 21, 24″ Hollingsworth Back Geared Crank (New).
1—22″ Lodge & Davis Triple Grd.
1—20″ Whipp B. G.

Millers

1—No. 2 American Plain (used).
1—Each, Nos. 2-B and 2 Rockford Universal (new).
1—No. 0 Bickett Vertical Mill and Profiler (new).
2—No. 1 U. S. Hand Millers.
10—No. 32 Kempsmith Lincoln Type.
2—No. 1½ American Plain.
1—No. 1½ American Universal.

Punches and Presses

1—No. 2 Pratt & Whitney Trimming Press.
Willard Presses, 2, 3, 4, 5-A Inc.
1—Doty Combined Punch and Shear, geared; cap about 4x1″, with 7″ throat.

Gisholt Turret Lathes

19—24″, with 2½″, 4¼″ and 6½″ hollow spindles, chucking equipment, quick return, rapid traverse.

Hand Screw Machines

14—No. 2 Smith, round collet, capacity 1-1/16″; wire feed and auto. chuck, independent stops to turret.

Baush Drills

1—Baush Multiple Spindle, arranged for 24 spindles; now with 12 spindles; takes 60″ bet. columns; drills in any circle 12-48″ dia.; approx. wt. 30,000 lbs.
1—No. 1 Baush High Speed Multiple Spindle; rectangular head 16x20″; arranged for 16 spdl.; now with ten 1¼″ spdls., No. 2 M. T.; cone drive.

Lathes

1—25″x8′ Economy Heavy Duty Single Purpose Lathe, D. B. G., 3-step cone; C. R., Hol. Sp., quick change feed.
1—Each Sidney Medium Pattern Lathes, 14, 16, 18, 20″ by 6, 8, 10′ beds, Double Back Gears, 3-step cone; quick change gears.
1—Each Sidney Heavy Duty Lathes, 15, 17, 19, 25, 27″ x 6, 8, 10, 12, 14′ beds, Double Back Gear, 3-step cone, q. c. g.
1—14″x 6′ Flather Engine Lathe, screw cutting, Spindle Back Gear, cone.
2—12 & 14″x 6′ Worcester Tool Room, taper attachment, pan and collet.
1—Used Blaisdell, 22x10 B. G. Engine Lathe.
1—17″x8′ Lodge & Davis, solid spindle, plain rest.

Planers

1—24x24x 5 Powell.
1—26″x24″x 8′ Pond. 2 heads.
1—40″x40″x10′ New Haven, 1 head.
32″x32″x10′ Fitchburg.
30″x30″x8′ Pond.

Miscellaneous

Air compressor, 14x9x8 Bury, belt dr., with 35 h.p., 2-ph., 60-cy., 220-v. mtr.
Carwheel borer and facer, 50″ Sellers.
Gear cutter, 26″ Brown & S. No. 3.
Hammer, 40 lb. Bradley, cush. h.
Hammer, 230 lb. Little Giant, pwr.
Shear, alligator, approx. capacity 5″x1½″ bar stock.
Shear, No. 6 Quickwork rotary, 48″ throat, 1″ capacity.

Stock changing daily—write us of your requirements

WAYNE MACHINERY CO. FT. WAYNE, IND.

Branch Offices and Warehouses 18 W. Second St., Dayton, Ohio
121 So. Third St., Louisville, Ky.

Do You Want Any of These?

GRINDERS

Saxon type, vertical cylinder, automatic feeds.
Gardner No. 7 plain bearing disc, with equipment.
Wells universal cutter and reamer.
Pratt & Whitney 6"x48" plain, electric sizing attachment.
12"x40" Brown & S. No. 3, univ.; Reid No. 2 auto. surface.

SCREW MACHINES

Gridley 2¾", 4-spindle automatic, with extra equipment.
Garvin No. 2½ s. g., 1-7/16" cap., friction head geared.
National Acme 4-spdl. auto. Nos 515 & 55, 9/16" & 1⅛" cap.

MILLING MACHINES

Milwaukee No. 1 plain, b. g., working surface 29"x7".
Chicago hand, power table feed, standard equipment.
Becker AB-2, vertical, rotary attachment, also No. 25 plain.
Cincinnati Nos. 3 and 4 high power vertical.

SHAPERS

Hendey 24" friction, power down feed.
Fitchburg 12" traverse head, boring attachment.
Gould & Eberhardt, 15" s. g. crank; Flather 18" crank.

LATHES

Worcester 11"x5', latest type, taper and direct attachment.
Seneca Falls 13"x6', latest type, with universal chuck.
Putnam 14"x8', elevating rest, regular equipment, and chuck.
Blaisdell 16"x8', c. r., p. c. f., hollow spindle.
Bradford 20"x8', c. r., plain change gear, regular equipment.
Putnam 48"x31'6", actual swing 50", geared head.

LYND-FARQUHAR CO., Dept. G Quality Machine Tools BOSTON 9, MASS.

For Safe, Sane, and Conservative Business Houses

We offer these real bargains:

KEMPSMITH No. 3 Miller, 34"x11"x20", automatic power feeds, gear box and chain drive, braces, etc., in excellent condition $1025.
LeBLOND Screw Cutting Lathe, 22"x18', quick change and double back geared, brand new parts, thoroughly overhauled 1175.
POTTER & JOHNSTON 6A Automatic Chucking Lathe, good shape 750.
PIERCE 1⅞" Hand Screw Machine, wire feed, 21 spring collets, oil pan bed, hexagon turret, c/s, etc., very good tool 375.
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WH TCOMB-BLAISDELL Lathe, 20"x8' q. c. g., d. b. g., excellent 700.
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9" to 13" Barnes, h. s., cp. r., new.
10"x5' Summit, nearly new, (5).
13-15-16 and 18 O. & S., h.s..c.r.,new.
18"x 8' Fitchburg, hol. spdl., cp. r.
20"x10' Hamilton, double back gear.
22"x10' Bradford, dbl. bk. gr.
24"x12' Fitchburg.
24"x12' Fay & Scott.
25"x14 Schumacher & Boye.
36"x28' Putnam, geared head.
12"x5' Precision tool room, (5).
No. 5 Rivett precision, & attach.
8"x60" Fitchburg Lo-Swing.
21" and 24" Gisholt, turret.

TURRET LATHES and SCREW MACHINES

2½" Steinle, 6¾" hol. spdl., grd. hd.
No. 2 W. & S. hollow hexagon.
⅜"x3" Garvin No. 1-SP.
1½" Tilted turret hand screw mche.
2x24 & 3x36 J. & L., dbl. equipment.
⅝" Hartford single spindle auto.
1⅛" S. & K. hand screw machine.
No. 2 Warner & Swasey hol. hex.
Nos. 52, 53 & 56 National Acme.
21" and 24" Gisholt.

SHAPERS

14" Niles, traveling head.
14" Smith & Mills, crank.
16" Rockford, crank.
24" Walcott, geared.
20" Smith & Mills, geared.
16" Springfield, crank, back grd.

PLANERS

24x24x 6' Hendey.
24x24x 6' Pease.
36x36x10' Sellers, 2 heads.
44x44x12' Pond, 4 heads.
48x48x16' Bement-Miles, 2 heads.
54x54x16' Sellers, 4 heads.
60x60x17' Betts, 2 heads.
60x60x20' Sellers, 4 heads.
66x66x20' New Haven, 2 heads.
84x84x32' Putnam, 4 heads.

PRESSES

No. 856 Toledo, 36"stroke,15,000 lbs.
Perkins, dbl. crank, 16x24 bolster.
No. 2½ Robinson, 2000 lb., o. b. i.
No. 35 Niagara, Stiles type. (2).
No. 3 Robinson, 4300 lbs., o. b. i.
No. 6-A Willard 3400 lbs. inclinable.
No. 1½ Robinson 1500 lbs. inc., (3).
Bliss No. 2½, geared, new.

DRILLS and RADIALS

Henry & Wright sgl. spdl., high spd.
2½' Canedy-Otto plain, new.
Sensitive 1, 2, 3, 4 and 6 spindle.
24", 26" and 28" sliding head.
20" Barnes, all geared.
3' Bickford plain, cone driven.
4½' Prentice, gear box drive.
Quint 6-hole turret drill.

MILLING MACHINES

No. 25 Becker plain, (3).
Ames. Lincoln type, 10"x40" table.
No. 12 Brown & Sharpe.
No. 3 Brainard, 30x7 table.
No. 1½ B. & S. plain.
No. 2 H Brown & Sharpe plain.
Briggs type "A" high duty,24x8 table.
No.32 Kempsmith Lincoln type,(3).

GRINDERS

No. 3 W. & M. wet surface.
6x18 Landis, plain.
Madison, int., for cylinders in block.
Gisholt, universal tool.
Capital, internal, practically new.
Landis 10x24 universal.
Litter 10x20 universal.
26" and 66" Yates plate.

MISCELLANEOUS

Band saws, metal, Klemm, (2).
Boring mill, 12', 2 swivel heads.
Broaching mch., Lapointe No. 1.
Cold saw, Higley No. 11½.
Compressors, 9x8 and 12x10, new.
Furnaces,melting, No.3 Hawley,(2).
Furnace, oil tempering.
Furnace, lead or cyanide, 16" pot.
Gear cutter, B. & S. No. 2, 26".
Gear cutter, G. & E. 36".
Gear cutter, Whiton 36" x9½" face.
Hammers, 40 and 100 lb. Bradley.
Hammer, Toledo, 5,000 lb. fric. brd.
Hammer, Canton 6,000 lb. b.g. drop.
Motors, 35 & 50 h. p., 3 ph.,220 volt.
Oil groover, Garvin, nearly new.
Pumps, Gould triplex, 6½x8" & 7x8".
Shear, 8' & 10' for 10 gauge.

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2½", 3", 4", also 5" Barrett type.

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30", 36", 40", 50" and 75".

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4' Plain.

DRILLS—Upright and Multiple
12", 20", 24", 36" and 42"; also 2, 3 and 6 spindle.

LATHES
Various sizes from 14" to 102" swing, 6' to 22' beds.

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Nos. 4 & 5 Brown & Sharpe Plain.
No. 2 Lodge & Davis Plain—and others.

PLANERS
18-22-26-30-42-54" between housings; 1-2-3-4 heads.

TURRETS
2x24, 3½, 20x6; also 20", 28" and 34".

Also Punches and Shears, Gear Cutters, Shapers, Slotters, Grinders, Hammers, Presses, Cranes, Bolt and Pipe Machines

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MACHINE TOOL SPECIALS

72' "BETTS" Vertical Boring Mill.
72' B. & S. Auto Spur Gear Cutter.

RADIAL DRILLS
4' Bickford, cone driven.
4' Fosdick, box column.
5' Niles Universal, s. p. drive.
5' Cincinnati plain.

MILLING MACHINES
No. 25 Becker Plain.
No. 3½ Fox, power feed.
No. 2 Cincinnati Plain.
No. 2 Cleveland, S. P. drive.
No. 2B Brown & Sharpe Plain.
No. 3 Cincinnati plain, Geared.

MISCELLANEOUS
18C Bliss Inc. Stamp Press.
No. 856 Toledo Drawing Press.
No. 857 Toledo Drawing Press.
4—1⅝ Millholland Screw Mch's.
2—No. 2 Schuchardt & Schutte Spur and Spiral Gear Cutters.

LATHES
13x6 Champion.
14x6 Reed Standard.
20x6 Barker Standard.
20"x8' Monarch, quick change.
24"x12' Advance, qk. ch.
18x10 Schumacher-Boye.
20x8'x6' American, qk. ch. (3).
24x14 Boye-Emmes, quick ch.
24x14 Bradford Mueller.

PLANERS & SHAPERS
16" Kelley, plain crank.
20" Kelley, b. g. crank.
24" Smith & Silk, shifting belt.
26x26x 6 Niles, 1 head.
32x32x10 Pond, 2 heads.
60x60x18 Betts, 2 heads.

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They are all in fine shape
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THE MOTCH & MERRYWEATHER MACHINERY CO.
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DETROIT CINCINNATI PITTSBURGH

Second-Hand Machines

BORING MILLS.

Six 24" Bullard vertical turret lathes, latest type 4-jaw chuck, table.
Four 30" Bullard vertical, boring mills, 3-jaw chuck.
50" Baush vertical, two swivel heads, geared feed.

DRILLING MACHINES.

14" Myers sensitive, floor type.
20" Dwight Slate upright, sliding head.
Six Moline No. 117 heavy single spindle "Hole Hog".
3' Gang plain radial.

GEAR CUTTERS.

No. 2 Farwell gear hobber. | 18" Gould & E. gear hobber.

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No. 70 Heald internal grinder.

ENGINE LATHES.

32"x16' Fay & Scott, compound rest, power feed turret on shears.
54"x24' American, triple geared, hollow spindle, two sets chuck jaws.

PLANERS.

36"x36"x8'-Niles, two heads. | 60"x60"x12'Gleason, three heads.
36"x36"x10' Niles, two heads. | 66"x66"x17'Harrisburg, two hds.

MISCELLANEOUS.

No. 2 Mitts & Merrill keyseater.
No. 4 Hendey Lincoln type miller.
Shuster strip metal straightener and cutting off machine.
Four 20" Walcott shifting belt shapers.

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17 S. Jefferson St., Chicago, Ill.

Unusual bargains in slightly used machines:—

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1—42" Gisholt Boring Mill.
1—28" Barnes back geared sliding head Drill Press.
2—24" Barnes Vert. Drill Press.
1—4-spindle Guarantee Drill.
1—6-spdl. J. Barnes Gang Drill.
6—Sigourney plain bearing Sensitive Drills.
6—Pilton plain bearing Sensitive Drills.
2—No. 25 Foote-Burt 24" Drills.
2—No. 2-D Colburn Drills.
1—No. 12 Modern Grinder.
1—36" Fellows Gear Shaper.
1—Safety Emery Wheel Grinder, Planer Type.
1—No. 3 Brown & Sharpe Automatic Gear Cutter, heavy.
1—No. 17 Besly Disc Grinder.
1—No. 13 Brown & Sharpe Spur & Bevel Gear Cutter.
2—6x32 Norton Grinders.
1—3-sp. G. & E. Gear Rougher.
2—9x18 Porter Cable Lathes.
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1—30x14 Boye & Emmes Lathe.
1—30x14 Fifield Lathe.
1—24x12 Greaves-K. Lathe.
4—No. 3-A Warner & Swasey Hollow Hex. Turret Lathes.
1—A.B. Becker Milling Mch.
1—No. 3 Becker Vertical Milling Machine.
1—No. 3 Kempsmith Universal Milling Machine.
1—30x24x14 Ingersoll Milling Machine.
1—20" Cincinnati Shaper.
1—24" Gould & E. Shaper.
1—3½ Model A Cleveland Automatic, S. S.
1—2⅜" 5-Hole Turret Cleveland Automatic.
1—2⅜" Gridley, 4-spindle.
5—3⅛" Gridley, S. S.
2—2½ Gridley Multiple Spindle.

M. J. Walsh Machinery Co., 141 Sycamore St., Milwaukee, Wis.

Buy Right—Buy Now

Lathes

60″x20′ Fifield, motor driven.
36″x14′ Putnam, triple geared heavy duty, taper.
20″x12 American, geared head, etc., taper attachment.
20″x12′ LeBlond, geared head, quick change, etc., taper.
28″x18′ Johnson, qck. ch. gear., etc.
4—20″x10′ American, geared head, etc., latest.
14″x7′ Hendy tie bar, quick change, etc., taper.
14″x6′ Mulliner, qck. ch., etc., latest.
10″x4′ Seneca Falls; latest.

Horizontal Boring Mills

3½″ bar Universal Boring Machine Co's Univ. Boring Mche., single pulley.
4″ Espen-Lucas floor type, motor driven; bar travels vertical 40″, horizontal 36″, excellent condition.

Boring Mills—Horizontal & Vertical

100″ Betts Vertical, fixed cross rail, 3 heads.
72″ Betts, 2 heads, heavy duty.
60″ Niles-Bement-Pond, hvy. type, single pulley drive.
48″ Colburn, 2 heads, heavy type, rapid traverse to heads.
60″ Bickford, 2 heads.
36″ Bullard vert., turret type.
Six 24″ Bullard vert., turret type.

Milling Machines

8—No. 5C Becker-vertical (NEW).
No. 3 Hendy plain, gear box, etc.
No. 5B Becker-Brainard plain.
No. 3 Brown & Sharpe, universal.
No. 2 Kempsmith universal.
No. 1D Brown & Sharpe universal.
No. 1½ Hendy Norton universal.
8—No. 25 Becker plain.
No. 0 Van Norman duplex.
2—Briggs type (Gooley-Edlund).
No. 3 Becker vertical.

Shapers

16″ Gould & Eberhardt, complete with vise, etc., heavy type.
2—16″ Newark, extra heavy, complete with vise, etc.
4—15″ Smith & Mills, latest, complete with vises, etc.
4—15″ Hendy, complete with vises, etc.

Gear Cutters

60″x8″ Gould & Eberhardt, spur.
72″x8″ G. & E., spur and bevel.
No. 13 Brown & Sharpe, spur and bevel; latest, good as new.

Punches and Shears

No. 61 Carlin, cap. 4″ rounds.
32″ Sellers, cap. 2″ thr. 1½″, 2½″ r.
No. 26 Buffalo Slitting Shear, armor plate, NEW.

Planers

84″x84″x12′ Sellers, 3 heads.
48″x48″x14′ Powell, 4 hds. motor dr.
NOTE:-We have complete new electrical equipment with these inches.
60″x48″x20′ Gleason, 3 heads.
42″x42″x12′ Pond, two heads.
36″x36″x12′ Niles-Bement-P., 3 hds.

Radial Drills

8′ Pond, belt driv.. No. 5 Morse tpr.
6′ Niles-Bement-Pond full universal, complete with motor etc.
6′ Dreses full univ., comp motor etc.
6′ Baush, tapping attachment, No 5 Morse taper, belt or motor drive.
6′ Bickford semi-universal, tapping, single pulley. No. 5 Morse Taper.
5′ Niles-Bement-Pond, heavy duty. Plain, complete with motor.
5′ Prentice, plain, No. 4 Morse taper, belt driven.

Multiple Drills

Baush 10-spdl., extra heavy type, cap. 2″, excellent condition.
Baush 5-spindle, cap. 1½″, heavy duty, drills 18″ circle.
Baush 6-spdl. ¾″ cap. 14″ max. cir.
Rockford gang, 6-spindle, 1″ cap.
Rockford gang, 4-spindle, 1″ cap.
Barnes gang, 4-spindle, one spindle back geared, 3 plain.
Gardam gang, 10-spindle.

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Second-Hand Machinery

Before The War What was *your* attitude on the use of Second Hand Machinery? Were *you* one of the unbelievers? Were *you* one of those who without trying—did not believe Second Hand Machinery would give you service?

During The War Were *you* one of the many who—in spite of their prejudice—were forced to buy Second Hand Machine Tools?

Did *you* find—maybe to your surprise—that Second Hand Machinery—bought from a ***reputable dealer***—would meet the demands of your work? That you could buy Second Hand Machinery under a guarantee as strong as that of a manufacturer?

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The New York Machinery Exchange continues to live up to its principle of selling only ***Second Hand Machine Tools*** thoroughly overhauled and guaranteed for service. With the coming change in industrial conditions manufacturers will find our usual guarantee supplemented by a bigger stock—and that is all.

Boring Mills

80" Pond Plainfield vertical, 2 swivel hds.
72" Niles vertical, 2 swivel heads.
5' Poole vertical, 2 swivel heads.
Niles car wheel, table 48".
No. 2 Barrett horizontal cylinder, 5" bar.
Betts horizontal, 5" bar.
Binsse horizontal, 4½" bar.
No. 2 Beaman & Smith floor boring, drilling and milling, 4" spindle.

Drilling Machines

8' Bickford universal radial.
6' Niles-Bement-Pond plain radial.
6' Pond plain radial, arr. for motor drive.
6' Fosdick plain radial, tapping attachment.
6' Fosdick semi-universal radial.
6' Prentice plain radial, tapping attachment.
5½' Bickford plain radial, cone drive.
[illegible] vertical, [illegible] motor.
4' Mueller plain radial, gear box drive.

Milling Machines—Cont'd.

No. 53 Newton duplex horizontal slab, between spindles 87", mills 8' long.
Two 36"x24"x10' Newton slab, 2 vert. spdls.
No. 2 Beaman & Smith vert. & horiz. slab.
No. 3 Ingersoll horizontal and vertical, range 36"x14"x15½", 10 h. p. G. E. motor.
No. 1 Garvin pl., table 72"x20½", div. hds.
No. 1 Bickford plain.
Brainard plain, table 6"x24".

5' Poole vertical, 2 swivel heads.
Niles car wheel, table 48".
No. 2 Barrett horizontal cylinder, 5" bar.
Betts horizontal, 5" bar.
Hinsse horizontal, 44" bar.
No. 2 Beaman & Smith floor boring, drilling and milling, 4" spindle.
Betts horiz. knee type, arr. for motor drive.
Barrett three-way boring and facing machine, motor driven.
Bement-Miles horizontal, 3½" spindle.
Niles horizontal, 3½" bar.
Lucas No. 2 horizontal, 3½" spindle.
Bement horizontal, arr. for motor drive.
Newark horizontal, 3" bar.
Barnes horizontal boring, drilling and tapping machine.
Bement horizontal, arr. for motor drive.

Engine Lathes

60"x30' Fifield, triple grd., comp. rest.
36"x18' Niles-B.-P., geared hd., motor dr.
36"x20' Putnam screw cutting, dbl. bk. grd.
36"x18' L. & S. screw cutting, b. g., c. r.
30"x15' Fitchburg screw cutting, comp. rest.
Three 30"x12' Niles-Bement-Pond, grd. hd. hvy. duty, qk. ch. taper, arr. for motor dr.
30" Niles-Bement-Pond double axle lathe.
28"x30"x12' Harrington gap lathe.
26"x24' Putnam screw cutting, semi-qk. ch.
Three 24"x14' Prentice, geared friction hd., qk. ch., taper, arranged for motor drive.
24"x10' American, heavy duty, geared head, quick change, arranged for motor drive.
22"x8' American, 1 1-16" h. s., c. r., taper.
20"x14' Flather screw cutting, ½" h. s., c. r.
20"x12' Prentice, 1" h. s., c. r., p. cross f.
NEW 20"x8' Walcott, qk. ch., dbl. bk. grd.

6' Pond plain radial, arr. for motor drive.
6' Fosdick plain radial, tapping attachment.
6' Fosdick semi-universal radial.
6' Prentice plain radial, tapping attachment.
5' Bickford plain radial, cone drive.
5' American semi-universal, with d.c. motor.
4' Mueller plain radial, gear box drive.
4' Gang plain, gear box, single pulley drive.
4' Fosdick plain radial, tapping attachment.
4' N.-B.-P. semi-universal radial.
Baush 14-spdl. mult. vert., cap. 14-1" holes, max. spread of spdls. 36" cir., smallest 14". 4-spdl. Baush, minimum circle 6" max. 36".
60" Bickford, bk. grd. boiler makers'.
48" Fitchburg, back geared, sliding head.
28" Snyder, back geared, sliding head.
24" Prentice, back geared, sliding head.
22" Barnes, back geared.
22" Barnes upright.
22" Hoefer upright.
Three 22" Cincinnati upright.
20-spindle Fox multiple, ¾" capacity.
No. 3 Fox multiple, 16 spindle, ½" holes.
No. 2 Fox multiple, 14 spindle, ½" holes.
4-spdl. Pratt & Whitney, sliding head.
No. 1 four-spindle gang, Pratt & Whitney.
3-spindle Pratt & Whitney sensitive.
Bement-Miles post drill, heavy type.
Van Dorn & Dutton electric drill.
Five NEW 20" No. 858 Silver, w. & l. fd.
Four NEW No. 862 Silver, back geared.
Two Avey 4-spindle high speed sensitive.
Norton & Jones 2-spindle.
No. 1 Pratt & Whitney, 6-spindle.
12" Barnes sensitive.

Milling Machines

No. 4 Cincinnati heavy duty vertical.
No. 3 Cincinnati vertical, motor drive.
Three No. 2 Cincinnati vertical.

Two 36"x24"x10" Newton slab, 2 vert. spdls.
No. 2 Beaman & Smith vert. & horiz. slab.
No. 3 Ingersoll horizontal and vertical, range 34"x14"x15½", 10 h. p. G. E. motor.
No. 1½ Garvin pl., table 7½"x29½", clive. hds.
No. 1½ Bickford plain.
Brainard plain, table 6"x24".
12" Cincinnati plain manufacturing.
No. 2 Kempsmith plain.
No. 2 Pratt & Whitney plain.
No. 12 Garvin plain.
Two Pratt & W. auto. manufacturing.
Two Gooley & Edlund, mfg. type.

Presses

NEW No. 79½ Bliss, straight side, tie rod construction, double geared, 95,000 lbs.
Two No. 666 Toledo knuckle joint, 2½" stroke.
Three No. 60½ Bliss reducing, rack and pinion movement, adjustable stroke 4" to 42", wt. each 12,500 lb.; especially adapted for drawing shells and tubes up to 21".
No. 857 Toledo rack and pinion reducing, adjustable stroke 5" to 40".
Two No. 856 Toledo rack and pinion reducing, adjustable stroke 5" to 36".
No. 135 Bliss built-up straight side double crank, stroke 6", weight 10700 lbs.
D. G. 5 Ferracute, 5" stroke.
Ferracute PG-6 punch press, 13,500 lbs.
No. P-3 Ferracute, weight 3,600 lbs.
No. 3 Farrell power press, 1½" stroke.
No. 19 Bliss inclinable, 1¼" stroke.
Bliss No. 16 horning & wiring.
Behrendt dbl. acting o. b., grd., power.
No. 2½ Mansfield double acting, o. b., pwr.
Greenerd No. 5 arbor press.
Seven V. & O. No. 10½ double action crank presses, str. outer slide 1", str. plunger 2".
Two 7' Ohl Co. power brakes, cap. ½".

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Underwood Corp., H. B., Philadelphia

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Seaman & Smith Co., Providence, R. I.
Carroll Pdry. & Mche. Tool Co., Bucyrus, Ohio
Pawling & Harnischfeger Co., Milwaukee
Ryerson & Son, Jos. T., Chicago
Sinumons Machine Co., Albany, N. Y.

Boring Machines, Horizontal
Avey Drilling Machine Co., Cincinnati
Pedrick Tool & Machine Co., Philadelphia

Boring and Turning Machines, Vertical
Cincinnati Planer Co., Cincinnati
Simmons Machine Co., Albany, N Y.
Turner Machine Co., Danbury, Conn.

Bowden Wire Mechanism
Gwilliam Co., The, 23 Flatbush Ave., Brooklyn, New York

Brackets, Electric Light
Newman Mfg. Co., Cincinnati

Broaches
Hurlbut-Rogers Broach Co., Hudson, Mass.
Lagerholm Co., E., 9 S. Clinton St., Chicago
Lapointe Co., J. N., New London, Conn.
Velco Mfg. Co., Inc., Greenfield, Mass.

Broaching Machines
Lapointe Co., J. N., New London, Conn.
Simmons Machine Co., Albany, N. Y.

Bushings, Brass and Bronze
Bunting Brass & Bronze Co., Toledo, Ohio

Case Hardening Compound
Bell & Gossett Co., 117 N. Dearborn St., Chicago
Buchanan Chemical Co., C. G., Cincinnati
Buchanan Co., Thos., Cincinnati

Casters for Trucks
Hamilton Caster & Mfg. Co., Hamilton, Ohio

Centers, Index
Abrasive Mch. Tool Co., E. Providence, R. I.
Brown & Sharpe Mfg. Co., Providence, R. I.
Carter & Hakes Mch. Co., W. Winsted, Conn.
Dickow, Fred C., 3504 W. Lake St., Chgo.
Whiting & Comstock, Hartford, Conn.

Chains, Power Transmission
Cullman Wheel Co., 1344 Altgeld St., Chicago
Whitney Mfg. Co., Hartford, Conn.

Chasers
Modern Tool Co., Erie, Pa.
National Acme Co., Cleveland

Chucking Machines
New Britain Mche. Co., New Britain, Conn.
Wood Turret Machine Co., Brazil, Ind.

Chucks, Air
Frontier Chuck & Tool Co., Buffalo, N. Y.

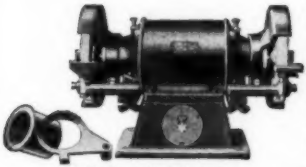
Chucks, Centering
McCrosky Tool Corporation, Meadville, Pa.
Thomas Elevator Co., 31 So. Hoyne Av., Chicago

Chucks, Draw-in and Thrust
Hardinge Bros., 1770 Berteau Av., Chicago

Chucks, Drill
Hartford Special Mchy. Co., Hartford, Conn.
Jacobs Mfg. Co., Hartford, Conn.
McCrosky Tool Corporation, Meadville, Pa.
Modern Tool Co., Erie, Pa.
Nielsen-Barton Chuck Co., 106 S. Jefferson St., Chicago
Scully-Jones & Co., Ry. Exch. Bldg., Chicago
Thomas Elevator Co., 31 S. Hoyne Ave. Chicago
Weaver Mfg. Co., Springfield, Ill.

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Cincinnati, Ohio

Agencies in All Principal Cities

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Chucks, Drill and Tap
McCrosky Tool Corporation, Meadville, Pa.
Modern Tool Co., Erie, Pa.
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Scully-Jones & Co., Ry. Exch. Bldg., Chicago

Chucks, Keyway Cutting
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

Chucks, Lathe
Thomas Elevator Co., 31 S. Hoyne Ave., Chicago

Chucks, Magnetic
Herald Machine Co., Worcester, Mass.

Chucks, Wrenchless
Thomas Elevator Co., 31 S. Hoyne Ave., Chicago

Clutches, Friction
Edgemont Machine Co., Dayton, Ohio
Milwaukee Shaper Co., Milwaukee, Wis.
National Clutch Co., 1859 Fulton St., Chicago

Cold Saws
Burke Machine Tool Co., Conneaut, Ohio
Cochrane-Bly Co., Rochester, N. Y.
Fairbanks Company, The, New York
Greenfield Tap & Die Corp., Greenfield, Mass.
Peter Bros. Mfg. Co., Algonquin, Ill.

Collets, Lathe and Screw Machine
Morrison Machine Products Co., Inc., Rochester, N. Y.

Counterbores and Spot Facers
Glenzer Co., J. C., Detroit, Mich.

Cranes, Hand Power
Euclid Crane & Hoist Co., Euclid, Ohio
Northern Engineering Works, Detroit, Mich.
Pawling & Harnischfeger Co. Milwaukee, Wis.
Weaver Mfg. Co., Springfield, Ill.

Cranes, Portable
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Canton Foundry & Mchc. Co., Canton, Ohio
Weaver Mfg. Co., Springfield, Ill.

Cranes, Traveling
Euclid Crane & Hoist Co., Euclid, Ohio
Northern Engineering Works, Detroit, Mich.
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Pedrick Tool & Machine Co., Philadelphia
Underwood Corp., H. B., Philadelphia

Cutters, Adjustable
Fairbanks Company, The, New York
McCrosky Tool Corporation, Meadville, Pa.
Madison Mfg. Co., Muskegon, Mich.

Cutters, Bolt
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.

Cutters, Keyseating
Lagerhoim Co., E., 9 S. Clinton St., Chicago
Scully-Jones & Co., Ry. Exch. Bldg., Chicago
Whitney Mfg. Co., Hartford, Conn.

Cutters, Milling
American Mchc. Products Co., Detroit, Mich.
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Genesee Mfg. Co., Rochester, N. Y.
Lagerhoim Co., E., 9 S. Clinton St., Chicago
Whitney Mfg., Co., Hartford, Conn.

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Etna Mfg. Co., Toledo, Ohio
Peter Bros. Mfg. Co., Algonquin, Ill.
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Cylinder Boring Machines, Portable
Pedrick Tool & Machine Co., Philadelphia
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Cylinder or Dome Facing Machines
Underwood Corp., H. B., Philadelphia

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Murchey Machine & Tool Co., Detroit, Mich.
National Acme Company, Cleveland

Dieing Machines
Henry & Wright Mfg. Co., Hartford, Conn.

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Bignall & Keeler Mchc. Wks., Edwardsville, Ill.

Dies, Screw and Thread Cutting
Hardinge Brothers, 1770 Berteau Av., Chicago
National Acme Co., Cleveland

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Victor Tool Co., Inc., Waynesboro, Pa.

Dogs, Machine
Ready Tool Co., Bridgeport, Conn.

Drilling Heads for Square Holes
Fairbanks Company, The, New York

Drilling Machine Heads
Harris Engineering Co., Bridgeport, Conn.
Nelson Blanck Mfg. Co., Detroit, Mich.
Newman Mfg. Co., Cincinnati
Sellew Machine Tool Co., Pawtucket, R. I.
United States Drill Head Co., Cincinnati
United States Machine Tool Co., Cincinnati

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High Speed Hammer Co., Rochester, N. Y.
Reed Co., Francis, Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.

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Henry & Wright Mfg. Hartford, Conn.
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Silver Mfg. Co., Salem, Ohio

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Sipp Machine Co., Paterson, N. J.
Wickes Bros., Saginaw, Mich.

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David Machine Tool Co., Rochester, N. Y.
Henry & Wright Mfg. Co., Hartford, Conn.
Hinckley Machine Works, Hinckley, Ill.
Hoosier Drilling Machine Co., Goshen, Ind.
Minster Machine Co., Minster, Ohio
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Taylor & Fenn Co., Hartford, Conn.

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Harris Engineering Co., Bridgeport, Conn.
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Modern Tool Co., Erie, Pa.
Reed Co., Francis, Worcester, Mass.
Sipp Machine Co., Paterson, N. J.
Turner Machine Co., Danbury, Conn.

Drills, Center
Cogsdill Manufacturing Co., Detroit, Mich.

Drills, Pneumatic
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago

Drills, Twist
American Mchs. Products Co., Detroit, Mich.

Dust Handling Equipment
Knickerbocker Co., Jackson, Mich.

Emery Stands
Blount Co., J. G., Everett, Mass.
Buchanan Co., Thos., Cincinnati
Partridge, E. O., 2047 W. Lake St., Chicago

Emery Wheel Dressers and Cutters
Buchanan Co., Thos., Cincinnati
Cleveland Flue Cleaner Mfg. Co., Cleveland
Taylor & Fenn Co., Hartford, Conn.

Facing Heads, Automatic
Mummert-Dixon Co., Hanover, Pa.

Feeders, Oil and Soda Water
New Britain Machine Co., New Britain, Conn.

Filing Machines
Cochrane-Bly Co., Rochester, N. Y.
Johnson & Biddle Tool Co., Elkhart, Ind.

Filing and Sawing Machines
Johnson & Biddle Tool Co., Elkhart, Ind.

Flexible Shafts
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand & Co., N. A., 640 Washington Blvd., Chicago

Forges
Canedy-Otto Mfg. Co., Chicago Heights, Ill.

Forgings, Drop
Western Tool & Mfg. Co., Springfield, Ohio

Forgings, Hollow Bored
American Hollow Boring Co., Erie, Pa.

Furnaces
Bennett Co., W. R., Elmwood, Conn.
Strong, Carlisle & Hammond Co., Cleveland

Furniture, Machine Shop
New Britain Machine Co., New Britain, Conn.
Western Tool & Mfg. Co., Springfield, Ohio

Gauges, Amplifying, Snap and Plug
Ainge Tool, Die and Machine Works, Geo. H., Springfield, Ohio
American Gauge Co., The, Dayton, Ohio

Gauges, Taper
Hartford Special Mchy. Co., Hartford, Conn.
Way Co., A. F., Hartford, Conn.

Gear Cutting Machines
Brown & Sharpe Mfg. Co., Providence, R. I.

Gears
Boston Gear Works, Quincy, Mass.
Modern Tool & Stamping Co., 313 S. Clinton St., Chicago

Grinding Machines, Bench
Blount Co., J. G., Everett, Mass.
Partridge, E. O., 2047 W. Lake St., Chicago
Ransom Mfg. Co., Oshkosh, Wis.

Grinding Machines, Cutter, Reamer and Tool
Barnes Co., W. F. & John, Rockford, Ill.
Blount Co., J. G., Everett, Mass.
Clough, E. M., Meriden, Conn.
Grand Rapids Grinding Machine Co., Grand Rapids, Mich.
Greenfield Machine Co., Greenfield, Mass.
Harris Engineering Co., Bridgeport, Conn.
Manhattan Machine & Tool Works, Grand Rapids, Mich.
Modern Tool Co., Erie, Pa.
Mummert-Dixon Co., Hanover, Pa.
National Acme Co., Cleveland
Ransom Mfg. Co., Oshkosh, Wis.
Simmons Machine Co., Albany, N. Y.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Machines, Cylinder
Heald Machine Co., Worcester, Mass.
Whitney & Son, Baxter D., Winchendon, Mass.

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Grinding Machines, Cylindrical
Brown & Sharpe Mfg. Co., Providence, R. I.
Detroit Machine Tool Co., Detroit, Mich.
Greenfield Machine Co., Greenfield, Mass.
Manhattan Machine & Tool Works, Grand Rapids, Mich.

Modern Tool Co., Erie, Pa.
Ott Grinder Co., Indianapolis, Ind.
Schmidt Co., B. L., Davenport, Iowa
Simmons Machine Co., Albany, N. Y.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Die
Abrasive Mche. Tool Co., E. Providence, R. I.
Manhattan Machine & Tool Works, Grand Rapids, Mich.

Modern Tool Co., Erie, Pa.
Reed Bros. Co., Inc., Beverly, Mass.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Machines, Disc
Murray-Mylrea Machine Co., Antigo, Wis.
Ransom Mfg. Co., Oshkosh, Wis.
Sellew Machine Tool Co., Pawtucket, R. I.

Grinding Machines, Drill
Grand Rapids Grinding Machine Co., Grand Rapids, Mich.

La Salle Tool Co., La Salle, Ill.
Ransom Mfg. Co., Oshkosh, Wis.
Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Machines, Face
Ransom Mfg. Co., Oshkosh, Wis.
Taylor & Penn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Gage
Abrasive Mche. Tool Co., E. Providence, R. I.

Grinding Machines, Internal
Churchill-Morgan-Crittsinger, Inc., Worcester, Mass.

Heald Machine Co., Worcester, Mass.
Modern Tool Co., Erie, Pa.
Ott Grinder Co., Indianapolis, Ind.
Taylor & Penn Co., Hartford, Conn.
Thom Grinder Co., Springfield, Ohio
Whitney & Son, Baxter D., Winchendon, Mass.
Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Machines, Oilstone
Mummert-Dixon Co., Hanover, Pa.

Grinding Machines, Portable
Hisey-Wolf Machine Co., Cincinnati
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago
Mummert-Dixon Co., Hanover, Pa.
Stow Flexible Shaft Co., Philadelphia
Strand & Co., N. A., 549 Washington Blvd., Chicago

Wisconsin Electric Co., Racine, Wis.

Grinding Machines, Snagging
Grand Rapids Grinding Machine Co., Grand Rapids, Mich.

Hisey-Wolf Machine Co., Cincinnati
Manhattan Machine & Tool Works, Grand Rapids, Mich.

Grinding Machines, Surface
Abrasive Mche. Tool Co., E. Providence, R. I.
Heald Machine Co., Worcester, Mass.
La Salle Tool Co., La Salle, Ill.
Ransom Mfg. Co., Oshkosh, Wis.
Reid Brothers Co. Inc., Beverly, Mass.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Machines, Universal
Brown & Sharpe Mfg. Co., Providence, R. I.
Grand Rapids Grinding Machine Co., Grand Rapids, Mich.
Greenfield Machine Co., Greenfield, Mass.
Modern Tool Co., Erie, Pa.
Ott Grinder Co., Indianapolis, Ind.
Simmons Machine Co., Albany, N. Y.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Wheel Dressers
Miller & Sons, Otto A., Detroit, Mich.

Hack Saw Blades
Peerless Machine Co., Racine, Wis.

Hack Saw Machines
Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago
Peerless Machine Co., Racine, Wis.
Western Tool & Mfg. Co., Springfield, Ohio

Hammers, Power
High Speed Hammer Co., Rochester, N. Y.
Nazel Engineering & Mch. Wks., Philadelphia
Quickwork Co., St. Marys, Ohio

Hammers, Riveting
High Speed Hammer Co., Rochester, N. Y

Heads, Dividing
Dickow, Fred C., 3504 W. Lake St., Chgo.
Simmons Machine Co., Albany, N. Y.
Willard-Middletown Machine Co., Cincinnati

Heads, Index
Dickow, Fred C., 3504 W. Lake St., Chgo.

Hobs
Lagerholm Co., E., 9 S. Clinton St., Chicago

Hoists, Air
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago
Northern Engineering Works, Detroit, Mich.

Hoists, Electric
Euclid Crane & Hoist Co., Euclid, Ohio
Northern Engineering Works, Detroit, Mich.
Thomas Elevator Co., 31 S. Hoyne Ave., Chicago

Weaver Mfg. Co., Springfield, Ill.

Hoists, Electric Traveling
Euclid Crane & Hoist Co., Euclid, Ohio
Northern Engineering Works, Detroit, Mich.
Pawling & Harnischfeger Co. Milwaukee, Wis.

Hoists, Portable
Canton Foundry & Machine Co., Canton, Ohio

Holders and Counterbores
Manufacturers Machine Products Co., Detroit, Mich.

Jigs, Fixtures, Tools, Etc.
Ainge Tool, Die and Machine Works, Geo. H., Springfield, Ohio
American Mche. Products Co., Detroit, Mich.
Hartford Special Mchy. Co., Hartford, Conn.
Hinckley Machine Works, Hinckley, Ill.
Potter Tool & Machine Works, S. A., 79 E. 130th St., New York
Way Co., A. F., Hartford, Conn.
Whiting & Cooper, Hartford, Conn.

Joints, Universal
Ainslie Mche. & Tool Works, Hartford, Conn.

Keyseating Machines
Bucher-Smith Co., East Liverpool, Ohio
Chattanooga Mchy. Co., Chattanooga, Tenn
Davis Machine Tool Co., Rochester, N. Y.
Lapointe Co., J. N., New London, Conn.
National Machine Tool Co., Cincinnati
Whitney Mfg. Co., Hartford, Conn.

Lathe Accessories and Attachments
Greaves-Klusman Tool Co., Cincinnati
McCrosky Tool Corporation, Meadville, Pa.
Modern Tool Co., Erie, Pa.
Newman Mfg. Co., Cincinnati
Sidney Tool Co., Sidney, Ohio
Simmons Machine Co., Albany, N. Y.
South Bend Lathe Works, South Bend, Ind.

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Potter Tool & Machine Works, S. A., 79 E. 130th St., New York
South Bend Lathe Works, South Bend, Ind.

Lathes, Engine
Barnes Co., W. F. & John, Rockford, Ill.
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Carroll-Jamieson Mch. Tool Co., Batavia, Ohio
Chard Lathe Co., Newcastle, Ind.
Davis Machine Tool Co., Rochester, N. Y.
Greaves-Klusman Tool Co., Cincinnati
Lehmann Machine Co., St. Louis, Mo.
Monarch Machine Tool Co., Sidney, Ohio
Mueller Machine Tool Co., Cincinnati
Ryerson & Son, Jos. T., Chicago
Sidney Tool Co., Sidney, Ohio
South Bend Lathe Works, South Bend, Ind.
Willard Machine Tool Co., Cincinnati
Wickes Bros., Saginaw, Mich.

Lathes, Flat Turret
Acme Machine Tool Co., Cincinnati

Lathes, Foot Power
Barnes Co., W. F. & John, Rockford, Ill.

Lathes, Horizontal Turret
Acme Machine Tool Co., Cincinnati
Chard Lathe Co., Newcastle, Ind.
Davis Machine Tool Co., Rochester, N. Y.
Smurr & Kamen Co., 329 N. Albany Av., Chicago
Steinle Turret Machine Co., Madison, Wis.
Wood Turret Machine Co., Brazil, Ind.

Lathes, Short Cut
Seneca Falls Mfg. Co., Seneca Falls, N. Y.
Sidney Tool Co., Sidney, Ohio

Lathes, Speed and Hand
Blount Co., J. G., Everett, Mass.

Lathes, Tilted Turret
Wood Turret Machine Co., Brazil, Ind.

Lockers, Shelving and Cupboards, Steel
Terrell's Equipment Co., Grand Rapids, Mich.

Mandrels, Expanding
Alert Tool Co., Philadelphia
Nicholson & Co., W. H., Wilkes-Barre, Pa
Western Tool & Mfg. Co., Springfield, Ohio

Mandrels, Solid
American Mchc. Products Co., Detroit, Mich.
Nicholson & Co., W. H., Wilkes-Barre, Pa.

Metal Cutting Machines, Sheet
Quickwork Co., St. Marys, Ohio
Ryerson & Son, Jos. T., Chicago
Savage Co., W. J., Knoxville, Tenn.
Way Co., A. F., Hartford, Conn.

Milling Attachments
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Knight Machinery Co., W. B., St. Louis, Mo.
Porter-Cable Machine Co., Syracuse, N. Y.
Potter Tool & Machine Works, S. A., 79 E. 130th St., New York
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Willard-Middletown Machine Co., Cincinnati

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Gooley & Edlund, Cortland, N. Y.
Ryerson & Son, Jos. T., Chicago

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Ryerson & Son, Jos. T., Chicago

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Genesee Mfg. Co., Rochester, N. Y.

Motors, Electric
Reliance Electric & Eng. Co., Cleveland
Wisconsin Electric Co., Racine, Wis.

Nut Facing Machines
Victor Tool Co., Inc., Waynesboro, Pa.

Oil Cups
American Galco Company, Grand Central Palace, New York
Gits Bros. Mfg. Co., 1940 S. Kilbourn Av., Chicago
Tucker, W. C. & F. C., Hartford, Conn.

Oil Hole Covers
Tucker, W. C. & F. C., Hartford, Conn.

Oils, Quenching
Bell & Gossett Co., 117 N. Dearborn St., Chicago

Parallels, Adjustable
Herith Mfg. Co., O. B., Hartford, Conn.

Pattern Shop Machinery
Chicago Mchy. Exchange, 1219 Washington Blvd., Chicago
Cochrane-Bly Co., Rochester, N. Y.
Silver Mfg. Co., Salem, Ohio
Towsley Mfg. Co., John T., Cincinnati

Pipe Bending Machines
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Underwood Corp., H. B., Philadelphia

Pipe Cutting and Threading Machines
Bignall & Keelor Mch. Wks., Edwardsville, Ill.
Simmons Machine Co., Albany, N. Y.

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Planer Attachment, Slotting
Moore Co., H. A., Rochester, N. Y.

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Underwood Corp., H. B., Philadelphia

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Pedrick Tool & Machine Co., Philadelphia
Underwood Corp., H. B., Philadelphia

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Stow Flexible Shaft Co., Philadelphia
Willmarth & Morman Co., Grand Rapids, Mich.
Wisconsin Electric Co., Racine, Wis.

Presses, Arbor
Atlas Press Co., Kalamazoo, Mich.
Bartlett, Edwin E., Nashua, N. H.
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Lourie Mfg. Co., Springfield, Ill.
Nicholson & Co., W. H., Wilkes-Barre, Pa.
Weaver Mfg. Co., Springfield, Ill.

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Atlas Press Co., Kalamazoo, Mich.
Bartlett, Edwin E., Nashua, N. H.
Lourie Mfg. Co., Springfield, Ill.

Presses, Foot
Atlas Press Co., Kalamazoo, Mich.
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.
Lourie Mfg. Co., Springfield, Ill.
Rockford Iron Works, Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.
Partridge, E. O., 2047 W. Lake St., Chicago

Presses, Power
Loshbough-Jordan T. & M. Co., Elkhart, Ind.
Rockford Iron Works, Rockford, Ill.
Willard-Middletown Machine Co., Cincinnati

Presses, Punch
Enterprise Machinery Co., 32 S. Clinton St., Chicago
Henry & Wright Mfg. Co., Hartford, Conn.
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.
Lewthwaite Mche. Co., T. H., 417 E. 31st., N. Y.
Loshbough-Jordan T. & M. Co., Elkhart, Ind.
Lourie Mfg. Co., Springfield, Ill.
Partridge E. O., 2047 W. Lake St., Chicago
Rockford Iron Works, Rockford, Ill.

Presses, Screw
Atlas Press Co., Kalamazoo, Mich.
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Manhattan Machine & Tool Works, Grand Rapids, Mich.
Pletz & Sons, Carl, Cincinnati
Towsley Mfg. Co., John T., Cincinnati
Weaver Mfg. Co., Springfield, Ill.

Pulley Machinery
Avey Drilling Machine Co., Cincinnati

Pulleys, Iron, Solid and Split
National Clutch Co., 1859 Fulton St., Chicago
Pyott Fdry Co., 328 N. Sangamon St. Chicago

Pumps, Centrifugal
Lea-Courtenay Company, Newark, N. J.

Pumps, Fire
Lea-Courtenay Company, Newark, N. J.

Pumps, Lubricating
Michigan Machine Co., Detroit, Mich.

Punch Press Feeds
Rockford Iron Works, Rockford, Ill.

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Punches, Hand
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Punches, Power
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Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.
Peterson & Son, Jos. T., Chicago
Wickes Bros., Saginaw, Mich.

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Lewthwaite Mche. Co., T. H., 417 E. 31st St., Rockford Iron Works, Rockford, Ill. [N. Y.

Quenching Bath
Bennett Metal Treating Co., Elmwood, Conn.

Racks, Drill and Tool
Peerless Machine Co., Racine, Wis.

Racks, Bar Stock
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Yohe Supply Co., Wm. S., Canton, Ohio

Reamer Holder, Floating
Victor Tool Co., Inc., Waynesboro, Pa.

Reamers, Adjustable
Cashman Tool Co., Waynesboro, Pa.
Clough, R. M., Meriden, Conn.
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Reamers, Cylinder
Hinckley Machine Works, Hinckley, Ill.
McCrosky Tool Corporation, Meadville, Pa.

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Reels, Extension
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High Speed Hammer Co., Rochester, N. Y.
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago

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Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago
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Tucker, W. C. & F. C., Hartford, Conn.

Roller Bearings
Gwilliam Co., The, 23 Flatbush Ave., Brooklyn, New York

Scraping Machines, Pneumatic
Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Driving Machines, Automatic
Reynolds Machine Co., Massillon, Ohio

Screw Machines, Automatic
Brown & Sharpe Mfg. Co., Providence, R. I.
Cincinnati Automatic Mche. Co., Cincinnati
National Acme Company, Cleveland
New Britain Mche. Co., New Britain, Conn.

Screw Machines, Plain or Hand
Acme Machine Tool Co., Cincinnati
Potter Tool & Machine Works, S. A., 79 E. 130th St., New York
Smurr & Kamen Co., 329 N. Albany Av., Chicago
Wood Turret Machine Co., Brazil, Ind.

Screws, Cap and Set
National Acme Company, Cleveland

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Aetna Machinery Corp'n, Newark, N. J.
Allen Mchy. Co., B. C., 104 S. Clinton St., Chicago
Bath & Co., Cyril J., Cleveland, Ohio
Beal & Co., Joseph, Boston
Bennett Machinery Co., G. L., 30 Church St., New York
Bertolette Co., Chester, Cincinnati
Bertolette Mche. Tool Co., Jersey City, N. J.
Brown-McDonald Mchy. Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.
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Enterprise Machinery Co., 32 S. Clinton St., Chicago

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Graves Mchy. Exc. 50 Church St., New York
Harris Bros. Co., W., 356th & Iron, Chicago
Hill, Clarke & Co., 625 Wash't'n Bl., Chicago
Hess-Schenck Company, Cleveland
Industrial Mchy. Corp'n, Jersey City, N. J.
Johnston Co., Wm. T., Cincinnati
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Jones Machine Tool Co., Cincinnati
Kemp Machinery Co., Baltimore, Md.
Lynd-Farquhar Co., Boston, Mass.
McCabe Lathe & Machinery Corp., J. J., 149 Broadway, New York
McCoy-Brandt Mchy. Co., Pittsburgh, Pa.
McMullen Mchy. Co., Grand Rapids, Mich.
Machine Tool Engineering Co., Inc., 149 Broadway, New York
Marshall & Huschart Machinery Co., 17 S. Jefferson St., Chicago
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Wicken Machinery Co., Jersey City, N. J.
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Wright, David A., 568 Washington Blvd., Chicago

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Stow Flexible Shaft Co., Philadelphia

Shafts, Steel

American Hollow Boring Co., Erie, Pa.

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Tap Wrenches

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Rickert-Shafer Co., Erie, Pa.
Turner Machine Co., Danbury, Conn.
Whitney Mfg. Co., Hartford, Conn.
Workwell Eng. & Mfg. Co., 616 W. Monroe St., Chicago

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Murchey Machine & Tool Co., Detroit, Mich.
Victor Tool Co., Inc., Waynesboro, Pa.

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National Acme Company, Cleveland
Victor Tool Co., Inc., Waynesboro, Pa.

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Ready Tool Co., Bridgeport, Conn.
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Western Tool & Mfg. Co., Springfield, Ohio
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Whitney & Son, Baxter D., Winchendon, Mass.

Weigel Double-Wheel "Trukaster"

Has heavy plates and axles. Easiest running, strongest and most durable double-wheel caster made. Lasts three times as long as others.

"Kwality Kaster"

(See Illustration)

The strongest and most durable single caster. Won't crush or break. Swivels on steel machined rollers.

Write for Price List

THE HAMILTON CASTER & MFG. CO.

HAMILTON, OHIO

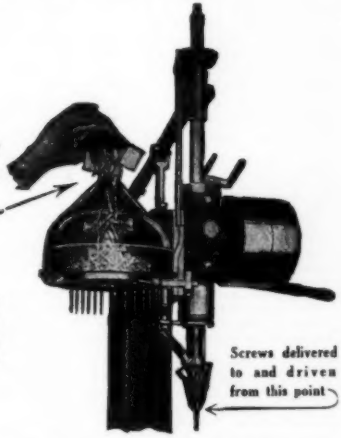


Magazine Feed Screw Driving

Means WHOLESALE Cost Saving

When users say that ***one*** operator, not especially skilled, does the work of ***half a dozen*** experienced men with spiral screw drivers, isn't that wholesale cost saving? And he does better work, too, with ***mechanical precision.***

Dump a gross or more of machine screws here



Then press a foot lever—that's all. Both hands are left free to handle the stock.

Screws delivered to and driven from this point

Reynolds Automatic Magazine-Feed Screw Driving Machine

Whether hex.-head, square-head or filister-head cap screws, the "Reynolds" automatically magazines and drives them perfectly at the rate of 8,000 to 16,000 a day. Large users everywhere now regard their Reynolds Automatics as indispensable; some say they pay for themselves four times a year. Going some, isn't it? Tell us about *your* screw driving proposition and we will tell you what we can do for *you*, and back it up.

The Reynolds Machine Company

Dept. H. H., Massillon, Ohio

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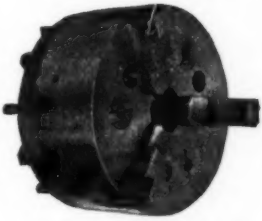
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The Lavoie Air Chuck

The Simplest and Best



Made in many sizes

Made in seven types

Six types of universal or combination jaws

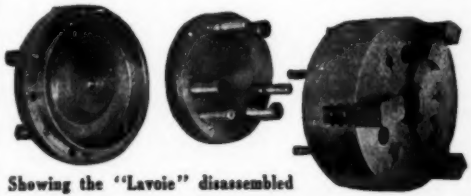
Don't confuse the "Lavoie" with other air chucks. It is simpler and better and inexpensive to install. Already used in a number of the best plants of the country, in some of which they "didn't want air chucks" until they saw the "Lavoie."

We avoid the heavy cylinder on rear end of spindle and ***combine the chuck, cylinder and piston in a single unit,*** simplifying its construction and application to the work. The clamping mechanism is of the lever and wedge type—absolutely no gears. A releasing spring eliminates the necessity for double piping and economizes air.

You will be interested in the full description. Your address?

Frontier Chuck & Tool Co.

36 Letchworth St., Buffalo, N. Y.



Showing the "Lavoie" disassembled

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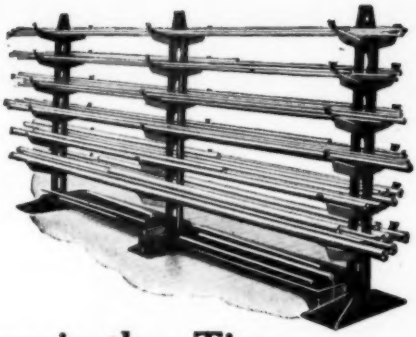
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Now is the Time

To Order These Racks

Around the first of the year most of us take stock and clean up generally. Now is the time to order these racks, so that you will have them on hand to take care of your bars, shafting, piping, etc. They save space and time, accommodate a large assortment of sizes without undue mixing, and make the shop tidy.

"N. B." Stock Racks

Are made in two styles—single-hook or wall pattern, and the double-hook type. Also in three lengths, with 2, 3 or 4 posts, for 12, 18 and 24 ft. stock. Pans at the bottom hold the small pieces.

The rack illustrated above holds about half a carload of 18 ft. stock—4-post and 2-post racks in proportion. The cut at the right shows graduations in lengths of hooks, to permit hoisting of stock vertically. No end-hauling.



Don't do without them another year
Better write now for Bulletin 1219

The New Britain Machine Company

"Shop Furniture Originators"

New Britain, Conn. U.S.A.

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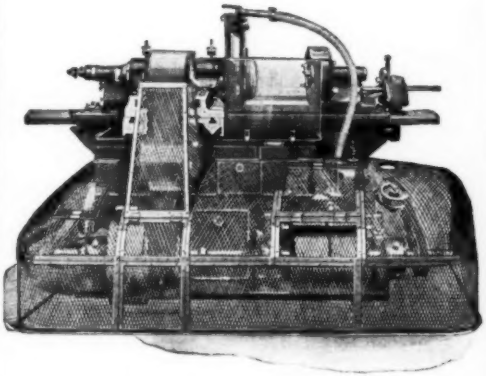
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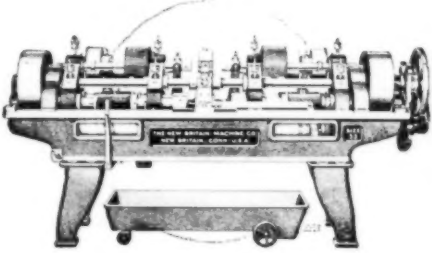
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